ARSON-ASSOCIATED HOMICIDE IN THE NETHERLANDS

Master Thesis
Hennie de Vries (s1042440)
Supervised by: Dr. M.C.A. Liem
2nd Reader: B.W. Schuurman MA

Leiden University Faculty of Governance and Global Affairs
MSc Crisis and Security Management

June 8, 2017

ABSTRACT

"*Arson is one of the easiest crimes to commit, but the hardest to prevent or prove*" (Geller, as cited in Drake & Block, 2003, p. 227).

As illustrated by the quote above, firesetting is a crime with specific features that distinguish it from other crimes, such as aggression and sexual violations (Dalhuisen, 2016; Davies & Mouzos, 2007). People who set fire can achieve maximum result with minimum effort. In addition, the act of firesetting can have devastating consequences, such as the death of both targeted and unintended victims (Dalhuisen, 2016; Ferguson et al., 2015; Gannon & Pina, 2010). It is, therefore, striking that little research has been devoted to firesetting in the Netherlands, especially to the use of fire in homicide. In order to gain insight into this under-researched topic of arson-associated homicide, the current study examined the Multi-Trajectory Theory of Adult Firesetting (M-TTAF). This theoretical framework proposes several prototypical trajectories leading to firesetting to increase the usefulness of the theory for the treatment of firesetters (Gannon et al., 2012).

The findings indicated that arson-associated homicide can be considered as a heterogeneous phenomenon. A two-step cluster analysis revealed three subtypes of arson-homicide offenders: *Opportunistic Firesetters*, *Disordered Firesetters*, and *Revenge Firesetters*. The clusters largely overlapped with the trajectories proposed by the M-TTAF, but differed in regard to relevant risk factors. In contrast to the theory's predictions, problems with impulsivity, social skills, and coping strategies were similar for the subtypes of arson-homicide offenders. The two risk factors antisocial values and suicidal thoughts, on the other hand, vary between the clusters. Risk assessment should thus be tailored to the antisocial values and suicidal thoughts of arson-homicide offenders.

TABLE OF CONTENTS

1. INTRODUCTION

1.1. INTRODUCTION

Almost twenty years ago, Gonda Smith was found dead in her burned home. Her husband Reinier had saved their children from the fire, but he had left behind his wife. After an investigation had revealed that Gonda was already deceased before the fire (she was beaten and stabbed), the Dutch court was crystal clear: Reinier had murdered his own wife. He was sent to jail for fifteen years (Beek & De Vries, 2016).

Although absolutely everything points to the involvement of Reinier - he would turn out to be addicted to gambling, he had no alibi and, according to the police, he called for help before the fire started - any direct evidence has never been found. Therefore, Reinier and lawyer Gert-Jan Knoops attempted to reopen the case. Reinier still insists that he is innocent, but even his own children do not believe him and never want to see him again. The court rejected Reinier's request for review of the case. Peter R. de Vries also conducted extensive research into the matter. A remarkable finding was that even before his conviction, Reinier met another woman, with whom he has now two children. She believes in his innocence, even though appearances are against him (Beek & De Vries, 2016).

As illustrated by the example described above, the use of fire in homicide is a crime with specific features that distinguish it from other behaviours against the law, such as aggression and sexual violations (Dalhuisen, 2016; Davies & Mouzos, 2007). People who set fire can achieve maximum result with minimum effort. In general, the act of firesetting is not proportionate to the outcome of the crime and can have devastating consequences, such as the death of both targeted and unintended victims (Dalhuisen, 2016; Ferguson, Doley, Watt, Lyneham & Payne, 2015; Gannon & Pina, 2010). In addition, the example illustrates that the use of fire in homicide is in most cases an attempt by the offender to destroy evidence. As a consequence, the investigation of arson-associated homicides can be challenging (Drake & Block, 2003; Ferguson et al., 2015). Geller argued that: "Arson is one of the easiest crimes to commit, but the hardest to prevent or prove" (as cited in Drake & Block, 2003, p. 227). Because of these negative consequences, the phenomenon of arson-associated homicide will be central to this thesis.

1.2. PREVALENCE

In this section, the prevalence of firesetting behaviour in the Netherlands is described, using the most recent data available from the Central Bureau for Statistics in the Netherlands. As illustrated in Figure 1.1, the total number of reported indoor and outdoor fires declined in the period 2000-2013. More specifically, more than 44.3 thousand fires were reported in 2000 compared to 33.7 thousand fire incidents in 2013 (Central Bureau for Statistics, 2015a). However, of these large numbers of reported fires in the Netherlands, only a relatively small proportion of fires was caused by intentional firesetting.

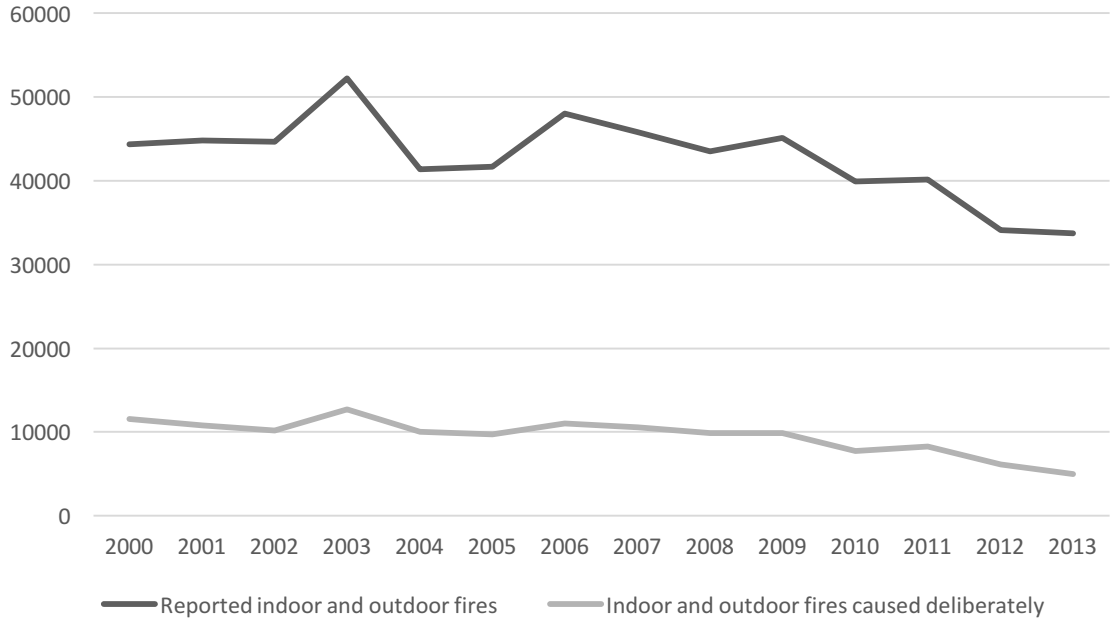

Figure 1.1: Total number of indoor and outdoor fires and the number of fires caused deliberately (Central Bureau for Statistics, 2015a)

Table 1.1 gives a more detailed description of the proportion of fires that were caused deliberately by firesetters. The proportion of intentional fires declined from 26.2% in 2000 to 14.8% in 2013. It is striking, however, that the number of fires causing the death of victims increased over this period of time. In 2013, for example, 92 people lost their lives due to fire incidents, the second highest percentage in the Netherlands since 2000.

Tabel 1.1

Reported indoor and outdoor fires, and number of deaths (Central Bureau for Statistics, 2015a)

Year	Indoor and outdoor fires	Indoor and outdoor fires caused deliberately		Deaths
	N	N	%	N
2000	44.336	11.597	26,2	62
2001	44.790	10.831	24,2	73
2002	44.683	10.202	22,8	70
2003	52.225	12.741	24,4	85
2004	41.341	10.009	24,2	74
2005	41.694	9.755	23,4	67
2006	48.030	11.012	22,9	80
2007	45.781	10.605	23,2	68
2008	43.497	9.880	22,7	97
2009	45.124	9.882	21,9	57
2010	39.933	7.752	19,4	65
2011	40.130	8.278	20,6	63
2012	34.074	6.146	18,0	72
2013	33.727	4.992	14,8	92

In accordance with the statement of Geller (in Drake & Block, 2003) that many cases of firesetting remain unsolved, Figure 1.2 illustrates the criminal justice system funnel for the period 2010-2015. The bar labelled as ‘reported cases’ concerns the average number of reported fire incidents in the period 2000-2013. The other four bars are based on the period 2010-2015 and refer to the average number of firesetting incidents registered by police officials, the number of solved cases, the number of firesetters who appeared in court, and the number of offenders found guilty. The figure underlines what other researchers have found in previous studies, namely that the investigation of arson-associated homicides can be challenging (Drake & Block, 2003; Ferguson et al., 2015).

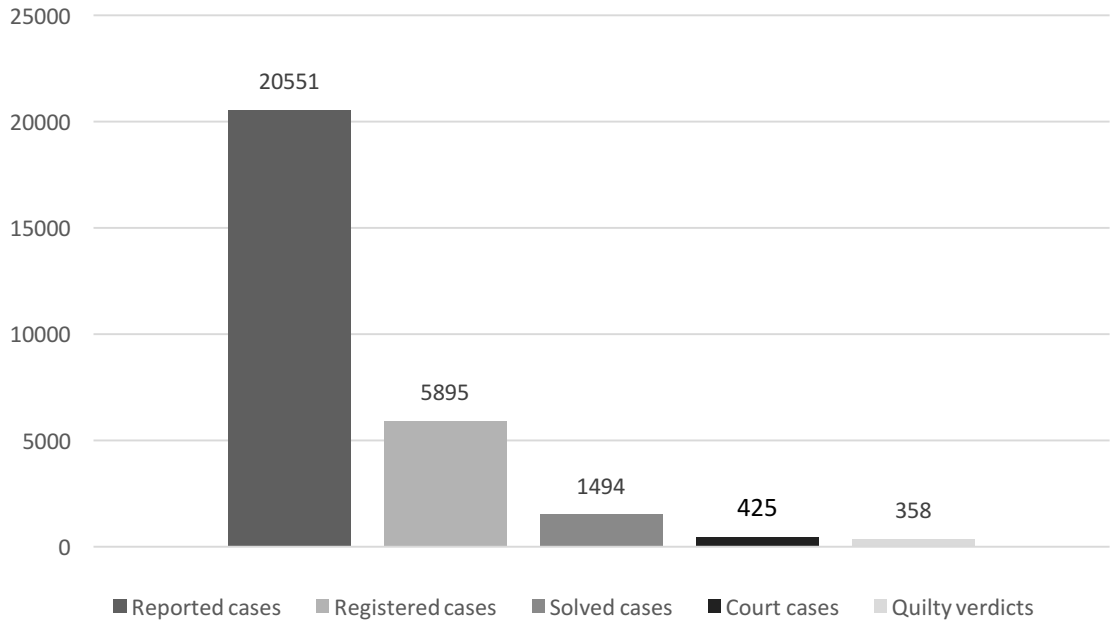

Figure 1.2: Criminal justice system funnel for 2010-2015 (Central Bureau for Statistics, 2015b; Central Bureau for Statistics, 2016a; Central Bureau for Statistics, 2016b)

1.3. CURRENT KNOWLEDGE ON ARSON-ASSOCIATED HOMICIDE

The subject of arson-associated homicide is an under-researched topic, especially in the Netherlands. Despite the fact that the act of firesetting has the ability to cause enormous harm to both targeted and unintended victims, little empirical research has been devoted to criminal burning (Ferguson et al., 2015). Although the subject of arson-homicides is underrated, some researchers have made an effort to gain insight into this phenomenon. The findings of these researchers will be presented and discussed in this section.

1.3.1. METHOD

Relevant studies on arson-associated homicides were selected through an extensive search on Web of Science. This commonly used database contains articles from scientific journals. A variety of related search terms were used to capture the maximum number of relevant studies. These search terms included *criminal burning, homicide-associated burning, arson-associated homicide, fire-associated homicide, and fire-related death.* The complete set of search terms is listed in Table 1.2. Important to note is that no specific time period was used in selecting the scientific studies.

Table 1.2

Search terms

TS=(("criminal burning*" OR "homicide-associated burning*" OR "arson-associated homicide*" OR "fire-associated homicide*") OR ((homicide* OR murder* OR killing* OR manslaughter* OR intentional* OR deliberate*) AND (firesetting* OR arson* OR "fire-related death*" OR "fire fatal*" OR "fatal fire*" NOT firearm)))

As presented below in Figure 1.3, the extensive search on Web of Science resulted in a total of 157 articles. The titles and abstracts of all these articles were screened for relevance to the inclusion criteria; which included studies that focused on the phenomenon of arson-associated homicide (excluded articles with reason A). Unfortunately, full access could not be obtained to twelve relevant studies on arson-homicide (excluded articles with reason B). The remaining 23 articles were then examined in detail to determine whether the studies met the other inclusion criteria. Figure 1 illustrates that five articles were excluded due to study design (review article etc.) (excluded articles with reason C), two studies as a result of language problems (excluded articles with reason D), and another five studies because of their focus on forensic assessment of burned bodies (excluded articles with reason E). As a consequence, eleven articles relevant to this study were found in the database of Web of Science. In addition, the snowball method was used to identify four additional studies, which led to a total of fifteen studies on the phenomenon of arson-associated homicide.

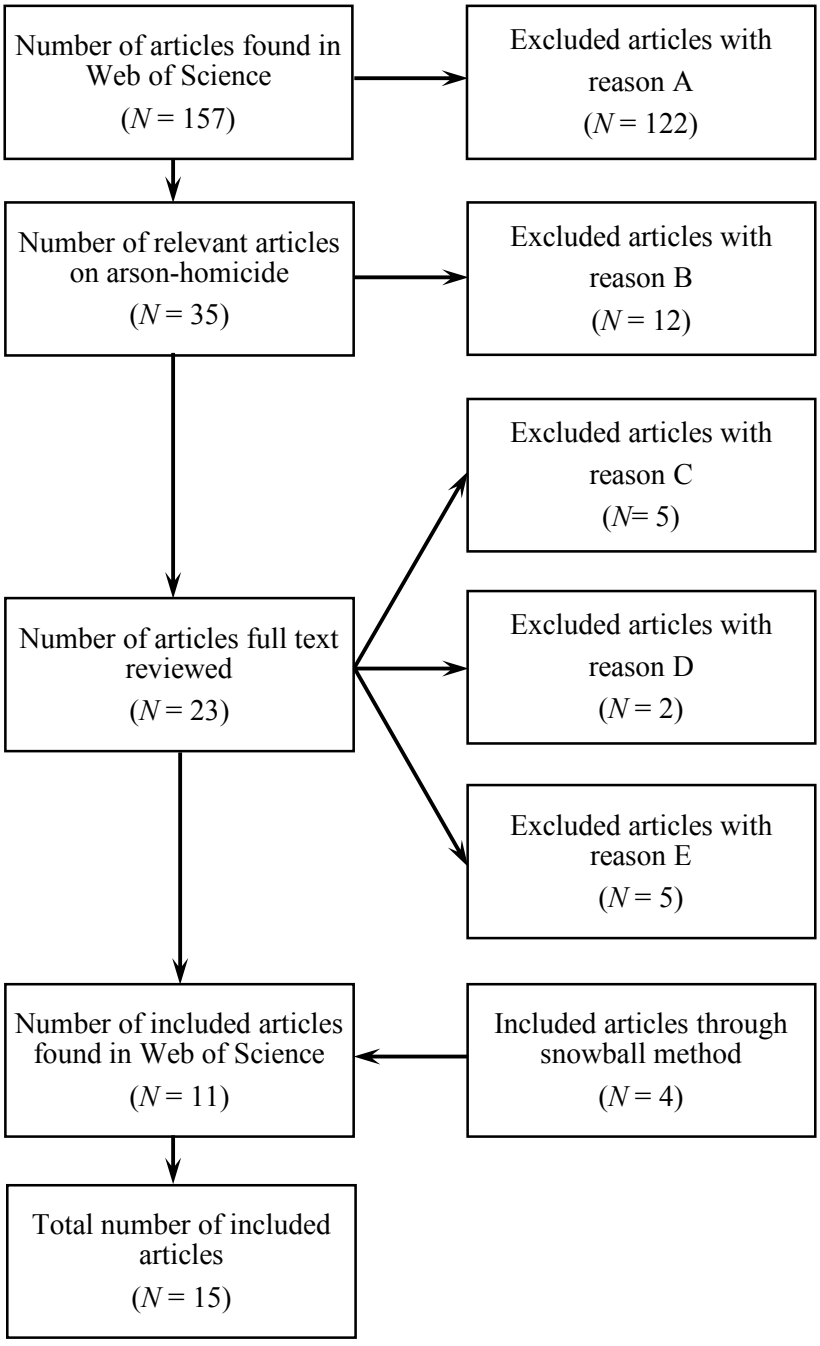

Figure 1.3: Flowchart of selection of articles for the literature review

1.3.2. FINDINGS OF LITERATURE REVIEW

In order to gain insight into the under-researched topic of arson-homicide, this study examines the findings of fifteen studies. As presented in Table 1.3, most of the studies were carried out in Australia (5 studies) and the United States (3 studies). The other studies were conducted in a diverse array of countries including Turkey (2 studies), Sweden (1 study), France (1 study), South Africa (1 study), India (1 study), and the United Kingdom (1 study).

The studies that were carried out in Australia concentrated both on single cases and larger scale samples. For example, Yuen, Yeoh, Alexander and Cook (2014) researched one fire incident that occurred in an aged-care facility. The authors Byard (2010) and Owen, Bedford, Leditschke, and Schlenker (2013) also examined a small number of cases. While Byard (2010) researched two incidents of arson-homicide where the offender was found deceased at the crime scene, Owen et al. (2013), studied two cases of burnt bodies. Davies and Mouzos (2007), on the other hand, investigated 100 fire-associated homicide incidents between 1990 and 2005 that were known to Australian police services. Their analysis showed that the majority of arson-homicides involved fire as a direct weapon to commit homicide (68%), while 29 percent used fire as a way to conceal homicide after the victim's death. The five-year follow-up of Ferguson et al. (2015) builds upon the findings of the research of Davies and Mouzos (2007) to provide a more detailed analysis of arson-associated homicide cases and offenders.

In addition to the studies carried out in Australia, three studies were conducted in the United States. The findings of all these studies were based on a large study sample (Block, 2013; Drake & Block, 2003; Sapp & Huff, 1994). The study of Sapp and Huff (1994), for example, researched 183 cases of arson-homicides that were obtained from almost 10,000 Violent Criminal Apprehension Program (VICAP) reports. Although the study has several methodological limitations, the report examined a variety of characteristics of cases that involved burning of the body both before and after death (Drake & Block, 2003). Furthermore, Drake and Block (2003) examined 269 arson-associated homicides from 1965 to 1995 obtained from the Chicago Homicide Dataset. The authors highlighted important victim and offender characteristics and factors related to the investigation of arson-associated incidents. In contrast to the studies mentioned before, the authors identified four types of arson-homicides: primary arson, person burned, secondary arson, and body burned. The first two types include homicides where the victim died primarily due to the effects of fire. The term 'primary arson' refers to a person who died in a structure that was set on fire by the perpetrator. In the 'person burned' type of homicide, the person's body was set on fire. The other two types of arson-associated homicide include the use of fire after the victim's death. The offender burned a structure or the victim's body after the victim was killed by other means to cover up the crime. Those are the last two types of arson-associated homicide, called 'secondary arson' and 'body burned'. In addition to the study mentioned above, Block (2013) published an additional article based on the Chicago Homicide Dataset, focusing primarily on elderly victims of arson-homicide.

Most of the studies that were conducted in the other countries did not focus primarily on the phenomenon of arson-associated homicide. The research conducted by Lerer (1994) in South Africa, for example, found that 10 percent of the 358 burn-related killings between 1991 and 1992 could be classified as homicides. This finding is in accordance with the study of Büyük and Koçak (2009), indicating that approximately ten percent of the 320 fire incidents were cases of homicide. Fanton, Jdeed, Tilhet-Coartet, and Malicier (2006), on the other hand, reported that 31 percent of the 40 burn-related deaths could be classified as criminal acts. The researchers came to the conclusion that criminal burning was mostly associated with the covering up of murder. The study of Dickens et al. (2009) focused on firesetters in general and found that 16 percent of the perpetrators posed a serious threat to the life of others. The remaining three studies, however, had as main objective to investigate the phenomenon of arson-associated homicide. The authors Cassuto and Tarnow (2003) conducted a case study on a discotheque fire in Gothenburg. The teenagers who set the fire in the basement of the discotheque had been removed from the club, prior to the incident. In addition, Kumar and Tripathi (2004) and Riza Tümur et al. (2012) researched various arson-homicides, whereby both studies reported on a specific population. The research of Kumar and Tripathi (2004) focused only on married women in India, and the study of Riza Tümur et al. (2012) included no other homicides than post-mortem burnings.

1.3.2.1. Incident characteristics

The findings of this literature review suggest that there are differences between arson-associated homicides and non arson-homicides. For example, the study of Drake and Block (2003) showed that perpetrators of primary and secondary arson-homicides more often murder multiple victims, in comparison to non arson-homicide offenders. Contradictory to this finding, two studies conducted in Australia found that most arson-homicides involve a single offender and a single victim (Davies & Mouzos, 2007; Ferguson et al., 2015). On the other hand, in the included studies concerning one major fire incident, multiple victims died at the scene of the fire or during hospital care (Cassuto & Tarnow, 2003; Yuen et al., 2014). Furthermore, most of the primary and secondary arson-homicide cases take place between the middle of the night and eight in the morning, while only a third of all recorded homicides occur during those hours (Drake & Block, 2003). However, this finding is merely reported in one included study on the basis of 269 arson-associated homicides in the United States (Drake & Block, 2003).

In addition, victims of arson-homicide had various relations with offenders (Ferguson et al., 2015). According to Sapp and Huff (1994), the victim was known to the perpetrator in almost one-third of the arson-homicide incidents in the United States. This finding is in accordance with the research of Ferguson et al. (2015) that was conducted in Australia, indicating that almost one-quarter of the arson-homicides are committed by intimate partners, compared to less than fifteen percent by strangers. Davies and Mouzos (2007) presented a more specific finding indicating that primary arson-homicide was mostly associated with strangers and acquaintances, while secondary homicide was more often committed by intimate partners and family members (Davies & Mouzos, 2007). This finding may indicate that perpetrators familiar to the victim are more motivated to cover up their crime (Davies & Mouzos, 2007). In line with these research outcomes was the finding of Ferguson et al. (2015), who suggested that a significant number of perpetrators planned the arson-homicide by bringing flammable material to the crime scene.

1.3.2.2. Victim characteristics

A number of studies on arson-associated homicide reported that a greater proportion of victims were female when compared with homicides in general (Drake & Block, 2003; Ferguson et al., 2015). However, most of the studies found that more than half of the arson-homicide victims were male (Büyük & Koçak, 2009; Cassuto & Tarnow, 2003; Davies & Mouzos, 2007; Ferguson et al., 2015, Lerer, 1994, Riza Tümer et al., 2012). It should be noted that it remains unclear whether women are more represented among the arson-associated homicide victims in the United States. Although Sapp and Huff (1994) reported that the victims consisted of mostly females, the studies of Block (2013) and Drake and Block (2003) found that more than half of the victims in arson-associated homicides were male. The researchers Kumar and Tripathi (2004) and Drake and Block (2003) put specific emphasis on the risk for female victims. The authors argued in their analysis of arson-homicides that this finding supports the hypothesis of overkill. The phenomenon of overkill proposes that fire is an unnecessary and excessive part to the homicide, which is identified in 46 to 90 percent of intimate partner homicide cases (Drake & Block, 2003). According to Drake and Block (2003), homicide between intimate partners resulted mostly from extreme anger within a disturbed relationship.

The mean age of the victims of arson-homicide ranged from 30 to 44 years (Büyük & Koçak, 2009; Davies & Mouzos, 2007; Drake & Block, 2003, Fanton et al., 2006; Ferguson et al., 2015, Owen et al., 2013, Riza Tümer et al., 2012; Sapp & Huff, 1995). Female victims tended to be

younger than male victims (Davies & Mouzos, 2007; Fanton et al., 2006; Sapp & Huff, 1994). According to Drake and Block (2003), both young and elderly persons are more likely to be victimized by arson-homicide, compared to homicide by other means. A remarkable finding is that, like these young and old victims, females were more often victim of fires taking place within a structure than in cases that involved burning of the body both before and after death (Drake & Block, 2003).

1.3.2.3. Offender characteristics

The number of studies published on juvenile arsonists might suggest that the proportion of arson-associated homicides set by juveniles would be very high (Drake & Block, 2003). However, the research findings of Drake and Block (2003) indicate that there is no significant difference between the involvement of young firesetters in primary arson-homicides and other non arson-homicides. In addition, Drake and Block (2003) found that none of the secondary arson incidents were set on fire by juvenile homicide offenders. These findings could implicate that young arsonists are more impulsive in comparison to adult perpetrators, but less driven by a desire to murder. Another explanation is that young firesetters tend to be less capable at destroying evidence by fire (Drake & Block, 2003).

The mean age of the offenders of arson-associated homicide ranged from 29 to 38 years (Byard, 2010; Davies & Mouzos, 2007; Dickens; 2009; Ferguson et al., 2015). In contrast to the victims, firesetters involved in arson-associated homicides tended to be slightly younger than those in non arson-homicide incidents (Ferguson et al., 2015). In accordance with the findings on juvenile arsonists, research demonstrates that there is no significant difference between the involvement of male offenders in primary arson-homicide incidents and other non arson-homicides. However, more than three-quarters of the perpetrators in arson-homicides were male (Davies & Mouzos, 2007; Dickens, 2009; Drake & Block, 2003; Ferguson et al., 2015). In line with this, Drake and Block (2003) argued that offenders using fire as a secondary element to conceal their homicide were more likely to be male, compared to the offenders in all recorded homicides (Drake & Block, 2003).

Contrary to the literature on the personal characteristics of the firesetters, which might imply that most suffer from mental health issues, during the offence, less than one-quarter of the arson-homicide offenders was diagnosed with a mental illness such as conduct disorder, borderline personality disorder, antisocial personality disorder, or narcissism (Ferguson et al.,

2015). Although this finding is based on a large sample of arson-associated homicide cases (*N* = 123) in Australia, this finding should be interpreted with caution because of the possibility that mental health illnesses had not been identified at the time of the offence. In accordance with this notion is the finding that many arson-homicide perpetrators had not been previously caught for firesetting, thereby missing the opportunity for psychological assessment (Ferguson et al., 2015).

Table 1.3

Literature review summary table

Study	Country	Research sample (time period)	Incident characteristics			Victim characteristics		Offender characteristics		
			Cause of death	Relationship	Multiple victims	Age	Gender	Age	Gender	Mental illness
			%	%	%	Years	%	Years	%	%
Block (2013)	United States	306 victims (1965-2000)	Study included only primary arson	-	-	<24 35% 25-59 44% >60 21%	57♂ 44♀	-	-	-
Büyük and Koçak (2009)	Turkey	320 cases, incl. 31 homicides (1998-2003)	Primary 1 Secondary 9	-	-	Avg. 37 (8 months-98 years)	71♂ 28♀	-	-	-
Byard (2010)	Australia	2 cases	Primary 50 Secondary 50	Intimates 50 Family 50	50	Avg. 15 (18 months-39 years)	67♂ 33♀	Avg. 38 (37 years-39 years	50♂ 50♀	50
Cassuto and Tarnow (2003)	Sweden	1 incident (30 Oct. 1998)	Primary 100 Secondary 0	Slightly know 100	100	Teenagers	-	Teenagers	100♂ 0♀	-
Davies and Mouzos (2007)	Australia	100 cases (1990-2005)	Primary 68 Secondary 29	-Primary: Strangers 25 Friends 22 Family 19 Intimates 19 Other 15 -Secondary: Intimates 40 Friends 28 Family 20 Strangers 8 Other 5	23	Avg. 35	60♂ 40♀	Avg. 33	84♂ 17♀	-
Dickens et al. (2009)	United Kingdom	167 arsonists, incl. 27 that endangered life (24-year period)	-	-	-	-	-	Avg. 29 (18 years-77 years	77♂ 23♀	100

Drake and Block (2003)	United States	269 cases (1965-1995)	Primary 51 Victim burned 12 Secondary 20 Body burned 16	-	20	<19 25% 20-39 40% 40-59 29% >60 14%	60♂ 40♀	Primary <16: 12% Secondary <16: 0%	86♂ 12♀	-
Fanton et al. (2006)	France	40 victims, incl. 12 homicides (1993-2003)	Primary 25 Secondary 75	-	-	Avg. 38 (3 years- 64 years)	50♂ 50♀	-	-	-
Ferguson et al. (2015)	Australia	123 cases (1989-2010)	Primary 82 Secondary 14	Intimates 24 Family: 22 Strangers 14	16	Avg. 34	57♂ 44♀	Avg. 36	74♂ 26♀	24
Kumar and Tripathi (2004)	India	47 victims (1987-1989)	-	-	-	<16 0% 16-25 77% 26-35 12% 36-45 10% >45 0%	0♂ 100♀	-	-	-
Lerer (1994)	South Africa	358 victims, incl. 35 homicides (1991-1992)	Primary 18 Secondary 82	-	-	<24 12% 25-34 47% 35-54 38% >55 3%	85♂ 15♀	-	-	-
Owen et al. (2013)	Australia	28 victims, incl. 2 homicides (2012)	-	-	0	Avg. 36 (23 years- 49 years)	50♂ 50♀	-	-	-
Rıza Tümer et al. (2012)	Turkey	13 cases (1998-2003)	Primary 0 Secondary 100	-	-	Avg. 44 (24 years- 62 years)	85♂ 15♀	-	-	-
Sapp and Huff (1995)	United States	183 cases (1985-1994)	Primary 30 Secondary 70	Known 32 Unknown 68	15	Avg. 30	46♂ 54♀	-	-	-
Yuen et al. (2014)	Australia	1 case (Nov. 2011)	Primary 100 Secondary 0	Slightly known 100	100	Elderly persons	-	-	-	-

1.4. EXPLAINING FIRESETTING BEHAVIOUR

1.4.1. FIRESETTERS' CHARACTERISTICS

Knowledge about the characteristics of firesetters is essential to the prevention of recidivism in firesetters (Dalhuisen, 2016; Gannon & Pina, 2010). Research findings suggest that firesetting is, for the most part, a male phenomenon (Gannon & Pina, 2010; Glancy, Spiers, Pitt & Dvoskin, 2003). In addition, Ganon and Pina (2010) identified that firesetting is often part of a wider array of general offences and that many firesetters are also involved in property and theft offences. Furthermore, firesetters are more likely to come from large and financially disadvantaged families, characterised by neglectful parenting styles and physical or sexual abuse (Gannon & Pina, 2010). This causes firesetters to show signs of low self-esteem, poor communication skills, and high levels of impulsivity (Gannon & Pina, 2010). It is striking that the diagnosis of pyromania amongst firesetters can hardly be made (Rice & Harris, 1991). According to Rice and Harris (1991), this unexpected finding is due to the narrow definition of pyromania that only includes intense excitement and satisfaction as motives. The most common diagnoses connected with firesetting appear to be antisocial personality disorder and schizophrenia (Ganon & Pina, 2010). These findings are in accordance with those reported in Dutch literature suggesting that firesetters often suffer from personality disorders instead of pyromania (Dalhuisen, 2016).

1.4.2. THEORIES OF FIRESETTING

Research demonstrates that firesetting behaviour is the outcome of the interaction of a complex, but poorly understood set of factors (Lowenstein, 2000). Thus, although the literature identified several characteristics, there is a general lack of theory associated with recidivism in firesetting (Doley, Fineman, Fritzon, Dolan & McEwan, 2011; Gannon, Ciardha, Doley & Alleyne, 2012; Ganon & Pina, 2010). This lack of knowledge is especially problematic because research tells us that firesetters are, in general, repeated offenders (Doley et al., 2011). According to Gannon et al. (2012), good etiological theory forms the foundation for risk assessment: "providing professionals with a unified description that may be used as a fundamental guide for assessment and treatment purposes" (p. 108). Gannon and Pina (2010) argue that levels of risk and types of risk factors differ among subtypes of firesetters, causing various treatment needs. Therefore, several typologies have been suggested to reduce the heterogeneity of firesetters. For example, Inciardi (1970) observed several firesetter categories based on the motivational patterns of the offenders such as revenge, excitement, and crime concealment. According to Ganon and Pina

(2010), these classificatory systems may be viewed as a guiding light for further theory development.

The psychoanalytical theory provided one of the earliest explanations for firesetting behaviour (Glancy et al., 2003). The underlying explanation of the theory is that firesetting originates from sexual feelings with urination. Children were said to extinguish fires that occur in their dreams through the urine stream (Glancy et al., 2003). Furthermore, firesetting behaviour was viewed as an alternative for forbidden masturbatory impulses, because of the sexual arousal that is being experienced at the time of firesetting (Glancy et al., 2003). Although the psychoanalytical theory provided a first insight into the phenomenon of firesetting, Glancy et al. (2003) point out that sexual desires are related to very few firesetting cases. However, the lack of explanatory power has given way to alternative approaches towards firesetting. For example, social learning theorists look at firesetting as the product of several learning principles such as learning experiences, personal repertoire, and family influences (Kolko & Kazdin, 1986). Learning experiences include early interest, direct experiences, and the availability of fire-starting supplies. Personal repertoire factors describe both behavioural and motivational components. Finally, family influences involve limited parental supervision and stressful events within the family structure such as death and divorce (Kolko & Kazdin, 1986). In accordance with social learning principles, research demonstrates that there is indeed some evidence indicating that firesetters are more likely to have a family history of setting fires (Gannon et al., 2012). Furthermore, the criminal approach proposes the routine activity theory as an explanation for firesetting behaviour: "if a person is motivated to set a fire, there must be a suitable target available and capable guardians must be absent" (Dalhuisen, 2016, p. 123). According to Cohen and Felson (1979), who are the founders of the theory, the focus should be upon the circumstances in which offenders carry out their criminal acts instead of emphasizing the characteristics of offenders.

1.4.3. The Multi-Trajectory Theory of Adult Firesetting

In consequence of these different approaches, Gannon et al. (2012) integrated the various theoretical explanations into a comprehensive etiological theory of firesetting: The Multi-Trajectory Theory of Adult Firesetting (M-TTAF). The concept incorporates multiple factors such as developmental factors, social learning factors, and psychological vulnerabilities. In addition, Gannon et al. (2012) identified several prototypical trajectories leading to firesetting in order to increase the usefulness of the theory for the treatment of firesetters: antisocial

cognition, grievance, fire interest, emotionally expressive/ need for recognition, and multi-faceted. According to Gannon et al. (2012), the antisocial cognition trajectory refers to firesetters who are mainly driven by instrumental motivations, such as financial profit and crime concealment (Gannon et al., 2012). Firesetters following this trajectory are not particularly interested in fire, but can be characterized by other risk factors, such as poor impulse control or antisocial personality disorder. In addition, they participated in a diverse array of criminal behaviours. The second trajectory, grievance, concerns firesetters with problems in the field of aggression, anger, and poor social skills (Gannon et al., 2012). Firesetters who act out of grievance are unlikely to have a fascination for fire, like the offenders described in the previous trajectory. On the contrary, such individuals will use fire as an effective tool to take revenge on people who offended them. Third, individuals following the pathway of fire interest do have a fascination for fire (Gannon et al., 2012). This fire interest, in combination with the characteristic of impulsivity, leads to the use of fire as a coping mechanism when problems arise. The fourth trajectory, emotionally expressive, refers to individuals who are motivated by self-harm or need for recognition (Gannon et al., 2012). The need for recognition entails that arsonists set fire to gain attention from others. In addition, these offenders plan their crimes to remain undiscovered. The most important risk factors within this trajectory are related to problems with self-regulation and communication problems. The final pathway concerns firesetters who have both an interest in fire and offence-supportive attitudes and beliefs (Gannon et al., 2012). The firesetting behaviour is likely to be the result of poor self-regulatory skills concerning emotion, and communication problems. These kinds of offenders are likely to repeatedly engage in firesetting behaviour.

1.5. THE CENTRAL RESEARCH QUESTION

In order to gain insight into the act of firesetting, the Multi-Trajectory Theory of Adult Firesetting (M-TTAF) proposes a wide-ranging multi-factorial theory of adult firesetting that has been built on the strongest parts of various theories (Gannon et al., 2012). The M-TTAF incorporates multiple factors such as developmental factors, social learning factors, and psychological vulnerabilities. In addition, Gannon et al. (2012) identified several prototypical trajectories leading to firesetting to increase the usefulness of the theory for the treatment of firesetters. The M-TTAF has already been validated on firesetter populations in the Netherlands (Dalhuisen, 2016). In order to build on this previous research and extend it to the population of arson-homicide offenders, the following question is central to this study:

- To what extent is the Multi-Trajectory Theory of Adult Firesetting applicable to Dutch firesetters who have used fire as a direct weapon to commit homicide, or as a way to conceal homicide in the years 2009-2016?

In order to answer this central research question and examine whether the M-TTAF can shed light on the under-researched topic of arson-associated homicide, the main research question is divided into several sub-questions:

- What are the motivations and characteristics of arson-homicide offenders in the Netherlands?

- To what extent are the motivations and characteristics correlated to the prototypical trajectories of adult firesetting?

1.6. SCIENTIFIC AND SOCIETAL RELEVANCE

The act of firesetting has the ability to cause enormous harm to both targeted and unintended victims, which puts the public at more risk compared with homicide by more controllable means (Ferguson et al., 2015). Because of these negative consequences, it is striking that little research has been devoted to firesetting in the Netherlands, especially in relation to homicides. As mentioned above, Dalhuisen (2016), has researched firesetting behaviour in the Netherlands, but without a specific focus on the phenomenon of arson-associated homicide. Most of the available information on the phenomenon of arson-associated homicide comes from studies carried out in Australia and the United States. However, because of differences in criminal justice systems, the international research findings cannot just be applied to the Netherlands (Dalhuisen, 2016). For that reason, it is scientifically relevant to gain insight into the under-researched topic of arson-homicides.

In addition, Gannon et al. (2012) identified several prototypical trajectories leading to firesetting to increase the usefulness of the theory for the treatment of firesetters. As argued earlier, the lack of knowledge regarding arson-homicide is especially problematic because research tells us that firesetters are, in general, repeated offenders (Doley et al., 2011). According to Gannon et al. (2012), a good theoretical framework forms the basis for risk assessment. In addition, risk factors differ among subtypes of firesetters, causing various treatment needs. Therefore, information about the characteristics of arson-homicide offenders,

and the circumstances in which these offenders carry out their criminal acts contributes to treatment effectiveness, which is in social interest.

1.7. OUTLINE

In order to answer the central research question, first, the methodological approach is outlined in Chapter 2. The chapter includes a description of the terminology used in this thesis, the data sources of information, and the quantitative and qualitative methods to analyse these data. Subsequently, in Chapter 3, the results of the qualitative and quantitative analysis are presented to gain more insight into the phenomenon of arson-associated homicide. Finally, the most significant findings are discussed in Chapter 4, and an answer to the research question is provided. In addition, this chapter ends with recommendations for future research.

2. METHOD

2.1. TERMINOLOGY USED IN THIS THESIS

The phenomenon of arson-associated homicide refers to the definition of both homicide and arson. In this thesis, homicide is defined as "an intentional criminal act of violence by one or more human beings resulting in the death of one or more other human beings" (Granath et al., 2011, p. 119). This definition is similar to the definition adopted in the European Homicide Monitor Guidebook and Coding Manual 2011, which form the basis of this study. In addition, the intentional component is in line with the legal definition of homicide, stated in Article 287 and Article 289 of the Dutch Criminal Code. The definition of arson, on the other hand, refers to Article 157 and Article 158 of the Dutch Criminal Code. These articles are concerned with firesetting behaviours that endanger the safety of persons or goods.

In accordance with previous literature, this study operationalized arson-associated homicide in terms of primary arson, person burned, secondary arson, and body burned. The first two types include homicides where the victim died primarily due to the effects of fire. The term 'primary arson' refers to a person who died in a structure that was set on fire by the perpetrator. In the 'person burned' type of homicide, the person's body was set on fire. The other two types of arson-associated homicide include the use of fire after the victim's death. The offender burned a structure or the victim's body after the victim was killed by other means to cover up the crime. Those are the last two types of arson-associated homicide, called 'secondary arson' and 'body burned'. In addition to these categories, this study suggests another type of arson-associated homicide: evidence burned. This conceptualisation refers to incidents in which the getaway car of the offender was burned to destroy evidence related to the crime. Arson-homicide incidents were thus only included if the cases fit into the categories outlined in this section.

2.2. RESEARCH STRATEGY AND DESIGN

As mentioned earlier, this master thesis aims at generating insight into arson-associated homicide in the Netherlands and, more specifically, the motivations and characteristics of arson-homicide offenders. The best-suited research design for this project is considered to be a mixed study design of quantitative and qualitative methods. According to Kumar (2010), "study designs in qualitative research are more appropriate for exploring the variation and diversity in any aspect of social life, whereas in quantitative research they are more suited to finding out

the extent of this variation and diversity" (p. 104). In order to answer the research question at hand, we first use the qualitative study design to gain a comprehensive and deep understanding of the motivations of arson-homicide offenders. In the second stage, the quantitative cross-sectional study design is applied to obtain a complete picture of the different characteristics of arson-homicide offenders in the Netherlands and to validate the trajectories proposed by the Multi-Trajectory Theory of Adult Firesetting.

2.3. METHODS OF DATA COLLECTION

The method of data collection involves the triangulation of several data sources. First, the Dutch Homicide Monitor forms the basis for the empirical part of this study. The Dutch Homicide Monitor includes all cases of homicide committed during the years 2009-2015 in the Netherlands and is based on police reports and open source information (Granath et al., 2011). The second data source that has been used is newspaper articles. In order to identify the characteristics of homicide incidents committed in 2016, data were extracted from newspaper releases and other public sources. The newspaper articles were accessed using LexisNexis, an academic website that archived more than 75 Dutch publications, including all major national and regional newspapers (LexisNexis, n.d.). The archives of LexisNexis go back more than 30 years and give a complete insight into the subject of interest. After collecting the data on homicide cases committed in 2016, the articles were coded on the basis of the European Homicide Monitor Guidebook and Coding Manual 2011 (Granath et al., 2011). This guidebook is included in Appendix A.

The following step was to identify the arson-homicide incidents by researching all cases of homicides committed during the years 2009-2016. As presented in Appendix A, the Dutch Homicide Monitor includes a variable for the modus operandi of the homicide (variable number 24). The value 'smoke or fire' of this variable refers to cases in which arson is classified as the method of violence. The selection of cases using this label resulted in the identification of ten arson-associated homicides. It is, however, important to note that the European Homicide Monitor Guidebook and Coding Manual 2011 (Granath et al., 2011) stipulates that the label highest up on the list is preferred, when multiple methods have been used. Because of this, the expectation was that more cases could be found within the Dutch Homicide Monitor. As a consequence, a variety of search terms were used to capture the maximum number of arson-homicide cases. These search terms included conflagration, fire, burn, smoke, explosion, gas,

and bomb. The extensive search on the Dutch Homicide Monitor resulted in a total of 50 arson-homicide incidents that occurred in the Netherlands between January 2009 and December 2016.

The third data source, court documents, provided information about the motivations of arson-homicide offenders and their psychological vulnerabilities. From the total of 50 arson-homicide incidents (including 70 perpetrators), 26 cases remained unsolved and in 4 cases the single perpetrator deceased. Of the 20 cases in which a single perpetrator (N = 12) or multiple perpetrators (N = 8) were known, an extensive search on rechtspraak.nl resulted in a total of 31 court decisions. In most of these court documents, information about the statements of perpetrators and witnesses in court and police interviews was included. In addition, phone calls, WhatsApp messages and psychological reports were included. From a total of 8 perpetrators in 2 cases of arson-homicide the court documents were not found.

2.4. METHODS OF ANALYSIS

After collection of the data, the information was analysed in several stages. In the first stage, the court decisions were analysed with the qualitative data software Atlas.ti, using the grounded theory approach. The fundamental idea behind this approach is to inductively develop a theory from the data (Borgatti, n.d.). The first step in developing a theoretical framework was open coding. This step refers to the process of reading and re-reading the court documents to develop relevant codes. The following step was axial coding, which involved relating the initial codes to larger themes. In the final step, the most important categories were chosen to develop a coding framework (Borgatti, n.d.). In figure 2.1, the final coding scheme is presented. Important to note is that court documents were only included to provide a comprehensive and deep understanding of the potential motivators; the Court's opinion on the actual motive served as guidance for subdividing the arson-homicide offenders.

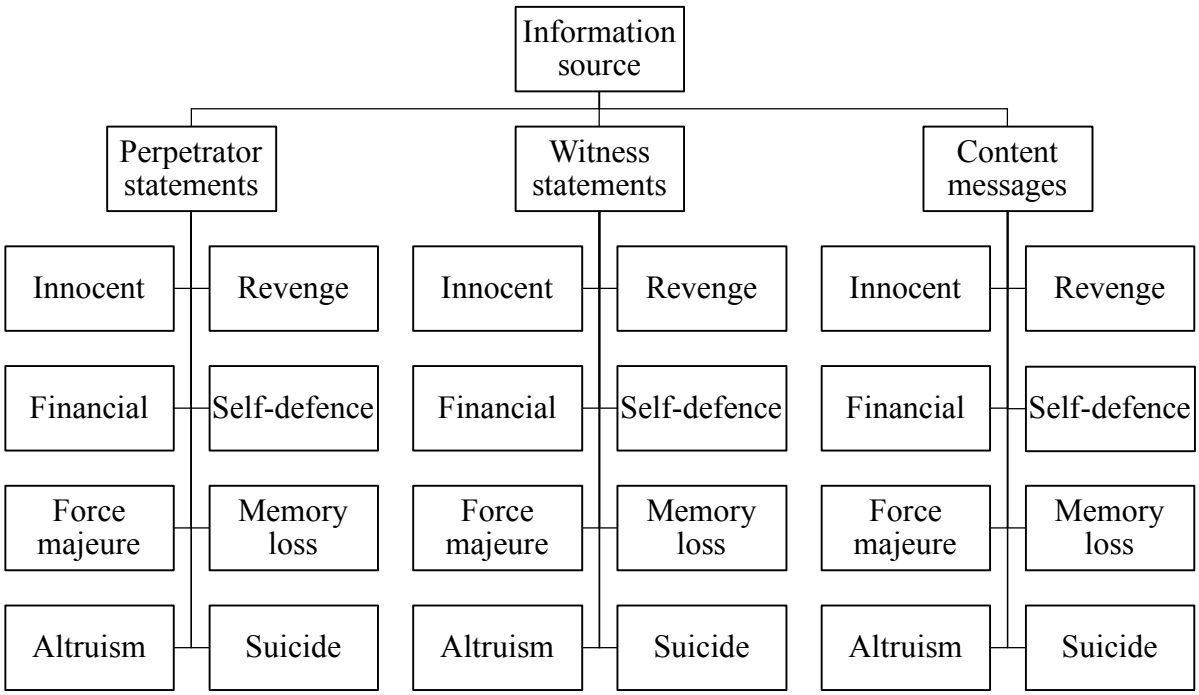

Figure 2.1: Final coding scheme

In the second stage, the motivations and characteristics of arson-homicide offenders were analysed with the statistical program SPSS. More specifically, a statistical comparison between several variables was made, using crosstabs and Fisher's exact tests. The crosstab function of SPPS is widely used to provide a clear overview of the interactions between variables (ResearchOptimus, n.d.). The Fisher's exact test is appropriate for small sample studies and was applied to test whether an association between the variables was statistically significant (Van den Berg, 2015). In this stage, it is important to note that information from several sources was combined and incorporated into the Dutch Homicide Monitor. As mentioned above, the newspaper articles and court documents were coded on the basis of the European Homicide Monitor Guidebook and Coding Manual 2011 (Granath et al., 2011). The court documents are considered as more trustworthy than the newspaper articles, when dealing with contradicting information.

In order to answer the research question at hand, a two-step cluster analysis was used to validate the trajectories proposed by the Multi-Trajectory Theory of Adult Firesetting. The operationalization of these trajectories is based on the theoretical framework outlined by Gannon et al. (2012). In addition, the study of Dalhuisen (2016) on firesetting and firesetters in the Netherlands has served as a guide in the development of concept and operationalisations,

which are presented in Table 2.1. A two-step cluster analysis is a statistical method that can be carried out to construct different groups or clusters, including both categorical and continuous variables. Several studies have demonstrated that cluster analysis is an appropriate tool in identifying subtypes of violent offences, including homicide and firesetting behaviour (Dalhuisen, 2016; Liem & Reichelmann, 2014). In the current study, the cluster variables were based on the offender characteristics proposed by the Multi-Trajectory Theory of Adult Firesetting (see Table 2.1). Eventually, this selection was narrowed down to the variables of perpetrator age and perpetrator motive. These variables were chosen empirically, and resulted in relatively few missing data. From the total of 36 known arson-homicide offenders, data on the cluster variables were missing on 2 perpetrators. The optimal number of clusters was automatically determined by using the auto-cluster option.

Table 2.1

Operationalization of relevant characteristics described in the M-TTAF

	Antisocial cognition	Grievance	Fire interest	Emotionally expressive/ need for recognition	Multi-faceted
Offender characteristics					
Age (years)	Young	-	-	-	-
Gender	♂	♂, ♀	-	♀	♂, ♀
Judicial history	High	-	-	-	-
Pure firesetter	Low	-	-	-	-
Impulsivity	High	-	High	High	High
Coping skills	-	-	-	Poor	Poor
Social skills	-	Poor	-	Poor	Poor
Mental illness disorder in the past	Yes	-	-	Yes	Yes
Motives	Vandalism/boredom Crime concealment Financial/opportunistic Revenge/retribution	Revenge/ retribution	Fire interest/thrill Stress/boredom	Cry for help Suicide/self-harm Need for recognition	Fire interest with various motivators
Offence characteristics					
Accusation only including firesetting	No	-	-	-	-
Suicidal thoughts	-	-	-	Yes	-
Offence planned	-	-	-	Yes	-
Accusation including multiple fires	-	-	Yes	-	Yes

3. RESULTS

3.1. INCIDENT CHARACTERISTICS

A total of 50 arson-associated homicide incidents (involving 57 victims and 70 perpetrators) were identified in the current study. As presented in Table 3.1, most of the arson-homicide incidents were classified as secondary arson and evidence burned, which implies that the perpetrator has used fire after the homicide. In addition, the findings demonstrate that there were more cases of primary and secondary arson than incidents in which the offender burned the victim's body either before or after the victim's death. Arson-homicide offenders are thus more likely to use fire in an indirect manner by burning the structure of the victim. The label 'other' refers to cases where the type of arson-homicide has remained unclear. In these cases, the available information was considered too limited to determine whether the victim was killed by the effects of fire or other means.

Table 3.1

Distribution of Arson-Homicide Cases by Type of Arson-Homicide

	Number of arson-homicide cases	
	N	%
Type of Arson-Homicide		
Primary arson	7	14
Person burned	4	8
Secondary arson	19	38
Body burned	2	4
Evidence burned	14	28
Other	4	8
Total	50	100
Missing	0	

3.1.1. NUMBER OF VICTIMS

The results shown in Table 3.2 demonstrate that almost all arson-homicide cases (92%) involve a single victim. In arson-homicide incidents where the offender killed more than one victim, it was more likely that the offender used fire as a direct weapon to commit homicide. However, this finding was not significant according to the Fisher's exact test.

Table 3.2

Distribution of Arson-Homicide Cases by Type of Arson-Homicide and by Number of Victims

	One victim		Multiple victims		Total		
	N	%	N	%	N	%	F.E.
Type of Arson-Homicide							7,175
Primary arson	5	10	2	4	7	14	
Person burned	3	6	1	2	4	8	
Secondary arson	18	36	0	0	18	36	
Body burned	2	4	0	0	2	4	
Evidence burned	14	28	1	2	15	30	
Other	4	8	0	0	4	8	
Total	46	92	4	8	50	100	
Missing	0						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.1.2. TIME OF INJURY TO VICTIMS

Table 3.3 displays that almost all arson-homicide cases (81%) occurred in the evening and night hours. An exception to this finding is for incidents in which the getaway car of the offender was burned. These arson-homicide cases were more equally divided among the time of injury categories.

Table 3.3

Distribution of Arson-Homicide Cases by Type of Arson-Homicide and by Time of Injury

	Morning		Afternoon		Evening		Night		Total		
	N	%	N	%	N	%	N	%	N	%	F.E.
Type of Arson-Homicide											15,389
Primary arson	0	0	0	0	0	0	5	19	5	19	
Person burned	0	0	0	0	1	4	1	4	2	8	
Secondary arson	0	0	0	0	1	4	1	4	2	8	
Body burned	1	4	0	0	0	0	0	0	1	4	
Evidence burned	2	8	2	8	5	19	5	19	14	54	
Other	0	0	0	0	0	0	2	8	2	8	
Total	3	12	2	8	7	27	14	54	26	100	
Missing	24										

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.1.3. RELATIONSHIP BETWEEN THE OFFENDER AND VICTIM

Finally, Table 3.4 indicates that there is a slightly significant relation between the type of arson-homicide and the extent to which the perpetrator knows the victim. For example, incidents in which the getaway car was burned were only committed by offenders who were strangers to the victim. In addition, it seems that arson-homicides classified as primary arson or person burned were more likely to be committed by intimate partners than the two secondary types of arson-homicide.

Table 3.4

Distribution of Arson-Homicide Cases by Type of Arson-Homicide and by Relationship

	Strangers		Intimates		Family		Friends		Slightly Know		Other		Total		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	F.E.
Type of Arson-Homicide															29,592¥
Primary arson	1	4	1	4	1	4	2	7	0	0	0	0	5	19	
Person burned	0	0	3	11	0	0	1	4	0	0	0	0	4	15	
Secondary arson	2	7	1	4	1	4	5	19	2	7	1	4	12	44	
Body burned	0	0	0	0	0	0	0	0	2	7	0	0	2	7	
Evidence burned	3	11	0	0	0	0	0	0	0	0	0	0	3	11	
Other	0	0	1	4	0	0	0	0	0	0	0	0	1	4	
Total	6	22	6	22	2	7	8	30	4	15	1	4	27	100	
Missing	23														

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.2. VICTIM CHARACTERISTICS

3.2.1. GENDER AND AGE

As mentioned before, a total of 57 victims were identified in the current study, including 24 males (61%) and 22 females (22%). As seen in Table 3.5, more than half of the victims was between the age of 30 and 49 years at the time of the crime. In addition, it is striking that most of the female victims were aged under 18 years, compared to the small number of male victims under 18 years of age.

Table 3.5

Distribution of Arson-Homicide Victims by Age and by Gender

	Male		Female		Total		
	N	%	N	%	N	%	F.E.
Age							8,679
17 years or below	1	2	6	11	7	13	
18-29 years	5	9	3	5	8	14	
30-39 years	9	16	5	9	14	25	
40-49 years	12	21	3	5	15	27	
50-59 years	5	9	4	7	9	16	
60 years or older	2	4	1	2	3	5	
Total	24	61	22	39	56	100	
Missing	1						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.2.2. GENDER AND TYPE OF ARSON-HOMICIDE

In Table 3.6, the distribution of arson-homicide victims by type of arson-homicide and by gender is presented, which indicates that males were more likely to become victim of the secondary type of homicide than female victims. Females, on the other hand, were more represented in the primary arson-homicides. Another remarkable finding is that the largest proportion of males (25%) were victim of incidents in which the getaway car was burned, compared to a relatively small percentage of females (4%). These findings were statistically significant at a confidence level of 99%.

Table 3.6

Distribution of Arson-Homicide Victims by Type of Arson-Homicide and by Gender

	Male		Female		Total		
	N	%	N	%	N	%	F.E.
Type of Arson-Homicide							20,164**
Primary arson	3	5	10	18	13	23	
Person burned	0	0	4	7	4	7	
Secondary arson	13	23	5	9	18	32	
Body burned	2	4	0	0	2	4	
Evidence burned	14	25	2	4	16	28	
Other	3	5	1	2	4	7	
Total	35	61	22	39	57	100	
Missing	0						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.2.3. AGE AND TYPE OF ARSON-HOMICIDE

Finally, Table 3.7 indicates that there was no correlation between type of arson-homicide and the age of victims. Most of the arson-homicide victims were thus equally divided among the age categories. In spite of this finding, there was a large proportion of victims under the age of 18 years represented in the primary arson-homicides. The type of evidence burned, on the other hand, was mostly classified by victims between the age of 30 and 49 years.

Table 3.7

Distribution of Arson-Homicide Victims by Type of Arson-Homicide and by Age

	17 years or below		18-29 years		30-39 years		40-49 years	
	N	%	N	%	N	%	N	%
Type of Arson-Homicide								
Primary arson	6	11	1	2	2	4	1	2
Person burned	0	0	1	2	1	2	1	2
Secondary arson	1	2	3	5	4	7	4	7
Body burned	0	0	0	0	1	2	1	2
Evidence burned	0	0	3	5	6	11	5	9
Other	0	0	0	0	0	0	3	5
Total	7	13	8	14	14	25	15	27
Missing	1							

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

Table 3.7 (Continued)

Distribution of Arson-Homicide Victims by Type of Arson-Homicide and by Age

	50-59 years		60 years or older		Total		
	N	%	N	%	N	%	F.E.
Type of Arson-Homicide							28,807
Primary arson	1	2	2	4	13	23	
Person burned	1	2	0	0	4	7	
Secondary arson	4	7	1	2	17	30	
Body burned	0	0	0	0	2	4	
Evidence burned	2	4	0	0	16	29	
Other	1	2	0	0	4	7	
Total	9	16	3	5	56	100	
Missing	1						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.3. OFFENDER CHARACTERISTICS

3.3.1. MOTIVATIONS OF ARSON-HOMICIDE OFFENDERS

A deeper understanding of the motivations of arson-homicide offenders is required to gain insight into the phenomenon of arson-associated homicide. Therefore, this section examines the statements of perpetrators themselves and the content of witness statements, phone calls, and messages about the driving forces behind the crime. From a total of 31 court decisions in 18 cases of arson-homicide, 12 perpetrators claimed to be innocent of the murder. It is, however, important to note that the defence argued for the innocence of a given individual way more often than the perpetrators themselves in court or during police interviews. In addition, in some cases, the arson-homicide offenders made contradicting statements or statements that conflicted with other witness statements.

3.3.1.1. Revenge

After analysing all the information, the conclusion can be made that most of the offenders were motivated by revenge, namely 14 out of the 6 homicide cases.[1] This finding is based on 8 statements of perpetrators themselves, 4 witness statements, and 2 phone calls or WhatsApp messages. A 43-year-old offender, for example, explained that:

> *[Suspect] has declared: [E. Vd V.] said that [victim] has called my girlfriend a whore. Last Sunday, I went to [victim] and I asked him if he called [M.W.] a whore. He then said that I had to shut up. [E. Vd V.], [H.P.] and I were planning how we could teach [victim] a lesson. [H.P.] and I agreed that we would beat [victim] up.*[2]

The WhatsApp messages from another arson-homicide offender revealed that the offender felt offended by the victim, and took revenge by setting her house on fire:

[1] Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5850; Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5854; Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5853; Rb. Oost-Brabant 9 April 2014, ECLI:NL:RBOBR:2014:1681; Rb. Noord-Nederland 10 December 2015, ECLI:NL:RBNNE:2015:5674; Hof 's-Hertogenbosch 21 March 2017, ECLI:NL:GHSHE:2017:1081; Hof Arnhem-Leeuwarden 20 July 2016, ECLI:NL:GHARL:2016:5909; Hof Arnhem-Leeuwarden 20 July 2016, ECLI:NL:GHARL:2016:5907; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2631; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2632; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2636; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2633; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2634; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2635.

[2] Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5850.

2013-06-17 21:55:11: me: But if I must hear that I'm a freak or ugly

2013-06-17 21:55:50: me: I do not call that a friendship

2013-06-17 22:07:25: me: please get that

2013-06-17 22:10:27: me: The choice is for you

2013-06-17 22:13:17: me: If I hear nothing more from you, I know enough

2013-06-17 22:13:38: me: And then you will burn to hell[3]

The statements outlined above suggest that the revenge-acts were anything but proportional to the victims' provocations. The Court also argued that the violence was extremely excessive and sentenced the perpetrators to fifteen and twenty years in prison.

3.3.1.2. Financial gain

In addition to the motive revenge, the findings indicate that financial motives are also important in arson-homicide cases. A total of 4 perpetrators in 2 arson-homicide cases were motivated by financial gain, based on two offender statements and two witness statements.[4] The following explanation gives insight into the motives of an offender for committing arson-homicide:

> *In the night of May 15, 2009, I [...] decided to take a ride. Eventually, [...] I ended up by that lady (the court understands: [A]), in [the street where A lived] in Spaubeek. There was a car in front of the house, of which I thought: "I want to have the key!" The key had to be in that house. [...] Look, such a car is worth a lot of money.*[5]

The Court has interpreted the statement outlined above as the real motive behind the murder and sentenced the perpetrator to imprisonment for fifteen years. According to the judge on the case, the offender confronted the 56-year-old victim when she came home after going out that night. The perpetrator was held responsible for abusing the woman and burning her to death.

[3] Rb. Oost-Brabant 9 April 2014, ECLI:NL:RBOBR:2014:1681.
[4] Hof 's-Hertogenbosch 20 December 2012, ECLI:NL:GHSHE:2012:BY6981; Hof Amsterdam 17 July 2016, ECLI:NL:GHAMS:2014:2319; Hof Amsterdam 17 July 2016, ECLI:NL:RBAMS:2012:BV3609; Hof Amsterdam 17 July 2016, ECLI:NL:RBAMS:2012:BV3607.
[5] Hof 's-Hertogenbosch 20 December 2012, ECLI:NL:GHSHE:2012:BY6981.

3.3.1.3. Self-defence

Furthermore, the findings suggest that self-defence is a frequently identified motivation contributing to firesetting behaviour with fatal consequences. A total of three arson-homicide offenders claimed that they acted out of self-protection:[6]

> *The only thing I know is that I was attacked by him and I defended myself," said the suspect at the hearing at the first-instance court of 29 September 2010.*[7]

Important to note is that in all three cases, the Court ruled that the perpetrator's statements were unreliable. In the particular case outlined above, the Court was of the opinion that the perpetrator murdered the victim with a knife and left him vulnerable to the fire. According to the Court, the large number of injuries resulted from blind anger, which was sentenced to twelve years in prison.

3.3.1.4. Psychological force majeure

Another motive that put emphasis on the behaviours of others than the accused is 'psychological force majeure'. Three of the arson-homicide offenders stated that they should not be found guilty because they were threatened by other perpetrators.[8] A 33-year-old offender, for example, described that:

> *He was under great pressure from [co-accused 2] and had no other option than to co-operate because of fear for his own life.*[9]

The statement outlined above suggests that several perpetrators had the feeling that the other co-offenders gave them no other choice than to cooperate. In two of the three cases, the Court rejected this appeal to force majeure. In another case, however, the Court was of the opinion that the perpetrator was driven to commit the crime by the co-offender, who had taken advantage of the perpetrator's' financial and psychological situation. As a consequence, the perpetrator was held less accountable, and therefore sentenced less harshly.

---

[6] Hof 's-Gravenhage 8 July 2011, ECLI:NL:GHSGR:2011:BR0753; Rb. Rotterdam 3 October 2013, ECLI:NL:RBROT:2013:7738; Rb. Oost-Brabant 23 May 2015, ECLI:NL:RBOBR:2016:2631.
[7] Hof 's-Gravenhage 8 June 2011, ECLI:NL:GHSGR:2011:BR0753.
[8] Rb. Noord Nederland 24 October 2013, ECLI:NL:RBNNE:2013:6443; Rb. Noord Nederland 10 December 2015, ECLI:NL:RBNNE:2015:5676; Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2636.
[9] Rb. Oost Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2636.

3.3.1.5. Memory loss

A remarkable finding is that a total of two arson-homicide offenders claimed that they could not remember committing the crime.[10] It is, however, important to note that both perpetrators are diagnosed as having a personality disorder. It seems, therefore, reasonable to presume that this finding relates to the forgetfulness of these perpetrators. As an illustration, the following statement gives insight into offenders with memory loss:

> *I have the idea that I've done something serious. I've probably killed someone ... I'm talking about the murder in Zeist. On December 7th, 2009, a girl was killed in her apartment.*[11]

In this particular case, the court ruled that the perpetrator was less accountable due to the diagnosis of mental illness. The sentence of 12 years imprisonment, however, fitted the seriousness of the offence. The victim was a 23-year-old women who was in the prime of her life and about to marry the love of her life. The Court suspected that the perpetrator (a woman of the same age as the victim) acted out of jealousy when burning the victim alive.

3.3.1.6. Altruism and suicide

The last two found motives of arson-homicide offenders can be described as the altruism motive and the suicide motive. While one perpetrator of arson-homicide argued to act out of desire to end his own life,[12] another offender explained that he killed the victim in order to release him from suffering:

> *After he was all beat up, there was no more chance at rescue, I can't let anyone suffer unnecessarily, sorry, this man would never have survived it. I thought, you can't let anyone live that way, he had no chance.*[13]

[10] Hof Arnhem-Leeuwarden 14 August 2013, ECLI:NL:GHARL:2013:6057; Rb. Oost-Brabant 9 April 2014, ECLI:NL:RBOBR:2014:1681.
[11] Hof Arnhem-Leeuwarden 14 August 2013 ECLI:NL:GHARL:2013:6057.
[12] RB 's-Hertogenbosch 11 May 2011, ECLI:NL:RBSHE:2011:BQ4001.
[13] Hof Arnhem-Leeuwarden 20 July 2016, ECLI:NL:GHARL:2016:5907.

The perpetrator who claimed to be driven by altruistic motives was, however, responsible for the hopeless situation in which the victim found himself. Therefore, the perpetrator was sentenced to fifteen years in prison.

3.3.2. CHARACTERISTICS OF ARSON-HOMICIDE OFFENDERS

3.3.2.1. Gender and age

As stated earlier, a total of 70 perpetrators were identified in the current study, including 41 males (91%) and 4 females (9%). Arson-associated homicide can thus be considered mainly as a male crime. As seen in Table 3.8, most of the perpetrators were between the age of 30 and 39 years at the time of the crime, but this finding was not found significant.

Table 3.8

Distribution of Arson-Homicide Offenders by Age and by Gender

	Male		Female		Total		
	N	%	N	%	N	%	F.E.
Age							3,247
17 years or below	1	2	0	0	1	2	
18-29 years	11	24	0	0	11	24	
30-39 years	15	33	3	7	18	40	
40-49 years	12	27	1	2	13	29	
50-59 years	2	4	0	0	2	4	
60 years or older	0	0	0	0	0	0	
Total	41	91	4	9	45	100	
Missing	25						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.3.2.2. Gender and type of arson-homicide

In Table 3.9, the distribution of arson-homicide offenders by type of arson-homicide and by gender is presented, which indicates that most of the male perpetrators were classified within the secondary type of arson-homicide. Females, on the other hand, were more equally divided among the arson-homicide categories. It is striking that arson-homicide offenders were more likely to commit primary and secondary arson-homicide than offences which involved burning of the victim's body either before or after the victim's death.

Table 3.9

Distribution of Arson-Homicide Offenders by Type of Arson-Homicide and by Gender

	Male		Female		Total		
	N	%	N	%	N	%	F.E.
Type of Arson-Homicide							5,359
Primary arson	5	11	1	2	6	13	
Person burned	3	7	1	2	4	9	
Secondary arson	24	52	1	2	25	54	
Body burned	4	9	0	0	4	9	
Evidence burned	5	11	1	2	6	13	
Type unknown	1	2	0	0	1	2	
Total	42	91	4	9	46	100	
Missing	24						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.3.2.3. Age and type of arson-homicide

In accordance with the results of the victim characteristics, Table 3.10 indicates that no remarkable differences were found between types of arson-homicide with regard to age. In spite of this finding, there was a large proportion of the offenders between the age of 18 and 49 years represented in secondary arson-homicides.

Table 3.10

Distribution of Arson-Homicide Offenders by Type of Arson-Homicide and by Age

	17 years or below		18-29 years		30-39 years		40-49 years	
	N	%	N	%	N	%	N	%
Type of Arson-Homicide								
Primary arson	0	0	1	2	11	4	3	7
Person burned	0	0	0	0	2	4	1	2
Secondary arson	0	0	7	16	11	24	7	16
Body burned	1	2	2	4	0	0	1	2
Evidence burned	0	0	1	2	3	7	1	2
Type unknown	0	0	0	0	0	0	0	0
Total	1	2	11	24	18	40	13	29
Missing	25							

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

Table 3.10 (Continued)

Distribution of Arson-Homicide Offenders by Type of Arson-Homicide and by Age

	50-59 years		60 years or older		Total		
	N	%	N	%	N	%	F.E.
Type of Arson-Homicide							26,273
Primary arson	0	0	0	0	6	13	
Person burned	1	2	0	0	4	9	
Secondary arson	0	0	0	0	25	56	
Body burned	0	0	0	0	4	9	
Evidence burned	0	0	0	0	5	11	
Other	1	2	0	0	1	2	
Total	2	4	0	0	45	100	
Missing	25						

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.3.2.4. Psychological vulnerabilities

Finally, as displayed in Table 3.11, more than half of the arson-homicide offenders suffered from mental illness at the time of the offence (68%). It is striking that most of the perpetrators represented in evidence burned arson-homicides, were not diagnosed with a psychological disorder.

Table 3.11

Distribution of Arson-Homicide Offenders by Type of Arson-Homicide and Mental illness

	No mental illness		Mental illness		
	N	%	N	%	F.E.
Type of Arson-Homicide					6,169
Primary arson	0	0	3	13	
Person burned	0	0	4	18	
Secondary arson	4	18	7	32	
Body burned	1	5	0	0	
Evidence burned	2	9	1	5	
Other	-	-	-	-	
Total	7	32	15	68	
Missing	48				

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

3.4. SUBTYPES OF ARSON-HOMICIDE OFFENDERS

As stated in the methodological section, a two-step cluster analysis was used to identify subtypes of arson-homicide offenders. The clusters that emerged from this analysis are presented in Table 3.12. The differences between the clusters were identified by measures of offender characteristics and motivations, and can be described as opportunistic, grievance, and disordered. The first cluster, labelled as opportunistic, constituted more than a quarter of all arson-homicide offenders (N = 11; 32%). The perpetrators were all male, with an average age of approximately 32 years. In addition, the individuals within this cluster had severe problems with impulse control and coping- and social skills, which explained the high proportion of offenders with a history of criminal behaviour. Perpetrators were mainly driven by instrumental motivations, such as financial profit and crime concealment, but showed no evidence of planning before the crime.

Case 1: example opportunistic firesetter

The 56-year-old victim worked as a teacher, and was especially known for her friendliness. When she came home after going out that night, a 41-year-old man confronted her in pursuit of financial gain. The perpetrator first stabbed the victim and then left her helpless in the fire. It was found that the offender committed the act under special circumstances. The man was not only in probation for an earlier conviction, but was also on the run: he had permission to leave for house viewing but he did not return for he claimed he was angry. Although the perpetrator refused a psychological investigation, experts argue that the man suffers from a personality disorder. This could be the cause of his problem with impulse regulation, and his antisocial and narcissistic traits.[14]

[14] Description based on newspaper articles published by ANP (Algemeen Nederlands Persbureau); Hof 's-Hertogenbosch 20 December 2012, ECLI:NL:GHSHE:2012:BY6981.

Table 3.12

Subtypes of Arson-Homicide Offenders

	Cluster 1 Opportunistic (n = 11)	Cluster 2 Grievance (n = 19)	Cluster 3 Disordered (n = 4)	
Offender characteristics	M(SD)	M(SD)	M(SD)	One-way ANOVA
Age (years)	32.27 (6.9)	34.84 (9.0)	42.75 (11.7)	2.129
	%	%	%	F.E.
Gender				1.286
Male	100	90	100	
Female	0	10	0	
Judicial history	80	80	0	4.566¥
Pure firesetter	0	6	50	5.872*
Impulsivity problems	43	21	0	1.601
Coping skills	57	40	100	1.669
Social skills	86	47	100	3.472
Mental illness in the past	63	75	100	.972
Motives				
Financial/opportunistic	64	0	0	16.142**
Revenge/retribution	0	100	0	38.606**
Boredom/vandalism	0	0	0	-
Fire interest/thrill	0	0	0	-
Cry for help	0	0	0	-
Suicide/self-harm	0	0	100	19.142**
Need for recognition	0	0	0	-
Crime concealment	82	90	0	11.683*
Other	0	0	0	-
Offence characteristics				
Accusation only including firesetting	0	11	50	5.219¥
Suicidal thoughts	0	11	75	9.291*
Offence planned	20	58	100	5.556*
Accusation including multiple fires	0	0	0	-
Dangerousness (personal harm)	100	100	100	-

*p < .05; **p <.001; ¥p < .10 (two-sided); F.E. = Fisher's Exact

Perpetrators characterized as having feelings of grievance, represented the largest group with more than half of all offenders (*N* = 19; 56%). Perpetrators were both male (90%) and female (10%), with an average age of almost 35 years. Whereas opportunistic perpetrators were driven by instrumental motivations, arson-homicide offenders within the grievance trajectory were mainly driven by revenge or anger. The table also displays that perpetrators were less likely to have poor impulsivity control and social- and coping skills than individuals in Cluster 1. It seems, therefore, logical that these perpetrators planned the crime more often.

Case 2: example grievance firesetter

The 27-year-old offender found residence in the asylum, where he fell in love with the wife of his victim. The wife was alone with her children, and he helped her as a family friend. When her husband came to the Netherlands a few months later, the marriage turned sour. The victim started beating both his wife and children, which caused the perpetrator to grow angry and started to plan his crime. He told the victims son, which lived with him for the time being, that he would abduct the victim to kill him. After doing so, he brought the body to the forest and burned it there to cover up his crime.[15]

The third cluster contains 4 arson-homicide offenders (12%) and consisted of males with an average age of more than 42 years. These disordered perpetrators can be characterised as having suicidal motivations. The prevalence of suicidal thoughts was thus also significantly higher among disordered firesetters than it was among opportunistic and grievance offenders. Furthermore, disordered firesetters were less likely to have a history of criminal behaviour compared to opportunistic and grievance firesetters. In accordance with this finding is that disordered arson-homicide offenders were more often pure firesetters. Another interesting result is that disordered offenders were not motivated by crime concealment, in contrast to the other perpetrators. This finding was statistically significant at a confidence level of 95%. This finding is especially remarkable given the result that all suicidal offenders planned their offense.

Case 3: example disordered firesetter

A 43-year-old man shocked a village in the Netherlands by burning his 35-year-old wife and their three children to death. The asylum family was well known in the small

[15]Description based on newspaper articles published by ANP (Algemeen Nederlands Persbureau); Hof 's-Hertogenbosch 21 March 2017, ECLI:NL:GHSHE:2017:1081.

community, and had just settled down in their own home after years of roaming around in the Netherlands. The neighbours immediately alerted the emergency services when the house exploded. After the man barricaded the house, he then set the house on fire to kill his family and himself. According to several neighbourhood residents, the man had already announced his act by threatening to do something that may end up on the news.[16]

[16]Description based on newspaper articles published by ANP (Algemeen Nederlands Persbureau).

4. DISCUSSION AND CONCLUSION

4.1. FINDINGS IN CONTEXT

This study represents one of the few systematic analysis of arson-associated homicide, especially in the Netherlands. The results indicated that a total of 50 arson-homicide incidents occurred in the Netherlands between January 2009 and December 2016. The proportion of firesetters with a homicidal intention was considerably lower than the average number of fires caused by firesetting, which was more than 7.4 thousand per year in the period 2009-2013. In addition, the findings revealed that arson-homicide incidents were more likely to be cases of primary and secondary arson than incidents in which the offender burned the victim's body either before or after the victim's death. Arson-homicide offenders are thus more likely to use fire in an indirect manner by burning the structure in which the victim was located.

4.1.1. INCIDENT CHARACTERISTICS

The finding that most arson-homicide cases involved a single victim who was murdered during evening and night hours is in accordance with previous studies (Davies & Mouzos, 2007; Drake & Block, 2003; Ferguson et al., 2015). The relationships between the offender and the victim, on the other hand, differed from those mentioned in previous studies. Whereas Sapp and Huff (1994) and Ferguson et al. (2015) argued that the perpetrator was more likely to be an intimate partner than a stranger, the current study indicated that these relationships were equally represented in cases of arson-homicide. Another contradicting result is that the two primary categories of arson-homicide were mostly associated with intimate partners. Davies and Mouzos (2007) predicted, in contrast, that primary arson-homicides were more likely to be committed by strangers than intimates. The findings of this study, therefore, contradict their conclusion that strangers were less motivated to cover up their crime compared to perpetrators close to the victim.

4.1.2. VICTIM CHARACTERISTICS

In line with earlier research, the findings indicated that more than half of the arson-homicide victims were male (Block, 2013; Büyük & Koçak, 2009; Cassuto & Tarnow, 2003; Davies & Mouzos, 2007; Drake & Block, 2003; Ferguson et al., 2015, Lerer, 1994, Riza Tümer et al., 2012). A closer look revealed that, in accordance with previous studies, female victims tended to be younger than male victims (Davies & Mouzos, 2007; Fanton et al., 2006; Sapp & Huff,

1994). Besides age, males and females also differed with respect to the different types of arson-homicide. Males were more likely to become victim of the secondary type of homicide and incidents in which the getaway car was burned compared to female victims. Females, on the other hand, were more represented in the primary arson-homicides. The primary cause of these victims' death was thus attributed to the effects of fire. This finding contradicts the hypothesis of overkill, which proposed that fire is an unnecessary part to the homicide.

4.1.3. OFFENDER CHARACTERISTICS

In order to gain insight into the phenomenon of arson-associated homicide, this study especially focused on the motivations and characteristics of arson-homicide offenders. The following sub-question was therefore addressed:

- *What are the motivations and characteristics of arson-homicide offenders in the Netherlands?*

Previous publications rarely included motivational factors to obtain a complete picture of arson-homicide behaviour. Therefore, this study first analysed the statements of perpetrators themselves, and the content of witness statements, phone calls, and messages. As stated in the methodological section, statements were only included to provide a comprehensive and deep understanding of the potential motivators; the Court's opinion on the actual motive served as guidance for subdividing the arson-homicide offenders. The results indicated that most of the perpetrators claimed to be driven by revenge or financial gain. In addition, the findings revealed that self-defence and psychological force majeure were frequently identified motivations that contributed to firesetting behaviour with fatal consequences. The Court, however, rejected almost all appeals to self-defence and force majeure. Furthermore, the two perpetrators who claimed that they could not remember committing the crime were diagnosed as having a personality disorder. The last two found motives of arson-homicide offenders can be described as the altruism motive and the suicide motive. While one perpetrator argued to act out of his desire to end his own life, another offender explained that he murdered the victim to release him from suffering.

In contrast to the motivations of arson-homicide offenders, offender characteristics have been discussed more frequently in the literature. Studies on adolescent firesetters, for example, suggested that the proportion of arson-associated homicides set by juveniles would be very high (Drake & Block, 2003). The research findings, however, showed that only one offender was

aged under 18 years. Furthermore, almost all arson-homicide offenders were males and mostly aged between 30 and 39 years. These male offenders were in most cases classified within the secondary type of arson-homicides. Females, on the other hand, were more equally divided among the arson-homicide categories. In contrast to the study reported by Ferguson et al. (2015), almost three quarter of perpetrators had suffered from mental illness at the time of the offence. This finding is supported by literature on firesetters, which argued that most firesetters suffer from mental health issues (Dalhuisen, 2016; Ganon & Pina, 2010).

4.1.4. SUBTYPES OF ARSON-HOMICIDE OFFENDERS

As stated in the introduction, the Multi-Trajectory Theory of Adult Firesetting identified several prototypical trajectories leading to firesetting, including firesetters with a particular interest in fire, revenge-oriented firesetters, antisocial firesetters, emotionally expressive firesetters, and multi-faced firesetters. This section describes the validation of these trajectories and an answer to the second sub-question:

- *To what extent are the motivations and characteristics correlated to the prototypical trajectories of adult firesetting?*

The current study revealed that arson-associated homicide is a heterogeneous phenomenon: three subtypes were identified among the 34 arson-homicide offenders. The first two clusters of *Opportunistic Firesetters* and *Disordered Firesetters* have been previously described in the M-TTAF. The cluster *Opportunistic Firesetters* includes individuals who were motivated by financial profit and crime concealment, and largely overlaps with the antisocial cognition trajectory proposed by the M-TTAF. Firesetters classified within this cluster were all male and participated in a diverse array of criminal behaviours. In addition, the proportion of perpetrators with a personality disorder and problems with impulse control was high in comparison to the other subtypes. In contrast to the M-TTAF, however, is the finding that the members of this cluster developed poor social- and coping skills.

The second cluster, *Disordered Firesetters*, seems to bear a resemblance to the emotionally expressive trajectory. The cluster *Disordered Firesetters* includes perpetrators with suicidal motivations and mental health issues. In addition, their most important risk factors were related to problems with social skills, and coping strategies. In contrast to the emotionally expressive trajectory, however, is the finding that firesetters classified within this cluster were all male.

According to the M-TTAF, several members of this cluster can be characterized as firesetters with a need for recognition. It is then argued that these firesetters planned their criminal act to remain undiscovered. Considering the findings of this study, however, it seems that members of this cluster prepared the murder to successfully commit suicide afterwards.

The third unexpected cluster, *Revenge Firesetters,* was also the largest subtype of arson-homicide offenders. The cluster partially overlaps with both the antisocial cognition trajectory and the grievance trajectory, and thus seems to be a combination of both trajectories. The cluster *Revenge Firesetters* includes individuals who were motivated by revenge and crime concealment, which corresponds with the grievance trajectory. In accordance with the antisocial cognition trajectory, firesetters classified within this cluster were coded as having antisocial values given their long judicial history. Their most important risk factors were, however, to a lesser extent related to problems with impulse control, social skills, and coping strategies. It is striking that the members of this cluster were both male and female. The conclusion can therefore be made that all female perpetrators acted out feelings of retribution.

4.1.5. CONCLUSION

At the beginning of this study, the following research question was formulated:

- To what extent is the Multi-Trajectory Theory of Adult Firesetting applicable to Dutch firesetters who have used fire as a direct weapon to commit homicide, or as a way to conceal homicide in the years 2009-2016?

In answer to this question, it could be argued that arson-associated homicide in the Netherlands can be partially explained by the Multi-Trajectory Theory of Adult Firesetting. The clusters of *Opportunistic Firesetters* and *Disordered Firesetters* largely overlapped with trajectories proposed by the M-TTAF. In addition, the cluster *Revenge Firesetters* seems to be a combination of different criminal paths. In accordance with the M-TTAF, the arson-homicide clusters differed, among other things, regarding judicial history and suicidal thoughts, indicating that antisocial values and psychological risk factors vary by arson-homicide offenders. These findings were statistically significant at a confidence level of >90%. In contrast to the theory's predictions, however, is the finding that there was no significant variance between the subtypes of arson-homicide offenders in regard to impulsivity, social skills, and coping strategies. Thus, although arson-associated homicide is considered to be a

heterogeneous phenomenon, these specific risk factors were similar for the subtypes of arson-homicide offenders. The findings of this study thus suggest that treatment cannot be tailored to self-regulation issues and communication problems. On the contrary, risk assessment should focus on the antisocial values and suicidal thoughts of arson-homicide offenders.

4.2. LIMITATIONS AND FUTURE RESEARCH

The findings of this study must be interpreted with some caution, because several limitations must be taken into account. First, the coding process of the newspaper articles and court documents has the potential for subjectivity. Although the European Homicide Monitor Guidebook and Coding Manual 2011 (Granath et al., 2011) provided a guiding framework for processing the data, the interpretations drawn from the data may differ from researcher to researcher (Kumar, 2010). Second, several offender characteristics that may be important for validating the firesetting trajectories were excluded from the current study. For example, information on abusive and neglecting experiences during childhood could not be obtained using the data sources as described in the methodological section. In addition, due to the small sample size and missing data, the possibility of false-negative results (type 2 error) cannot be neglected. Future research should therefore make an effort to examine data sources other than court documents and newspaper articles. To give an illustration, interviews with arson-homicide offenders could be conducted to gather data on childhood experiences. In addition, information from criminal records and mental health evaluations is desired to gain deeper insight into the personality risk factors of arson-homicide behaviour. Future studies incorporating these information sources will provide a more comprehensive picture of the complex phenomenon of arson-associated homicide.

5. REFERENCES

5.1. LITERATURE

Beek, P. (Producer), & De Vries, S. (Director). (2016). *De schijn tegen* [Motion Picture]. The Netherlands: KRO-NCRV.

Block, C.R. (2013). Homicide Against or by the Elderly in Chicago 1965-2000. *Homicide Studies, 17*(2), 154-183. doi: 10.1177/1088767913478596

Borgatti, S. (n.d.). Introduction to Grounded Theory Retrieved from: http://www.analytictech.com/mb870/introtogt.htm

Büyük, Y., & Koçak, U. (2009). Fire-related fatalities in Istanbul, Turkey: Analysis of 320 forensic autopsy cases. *Journal of Forensic and Legal Medicine, 16*, 449–454.

Byard, R.W., Veldhoen, D., Kobus, H., Heath, K. (2010). ‘‘Murder–Suicide’’ or ‘‘Murder–Accident’’? Difficulties with the Analysis of Cases. *Journal of Forensic Sciences, 55*(5), 1375-1377. doi: 10.1111/j.1556-4029.2010.01407.x

Cassuto, J., & Tarnowb, P. (2003). The discotheque fire in Gothenburg 1998 A tragedy among teenagers. *Burns, 29*, 405–416.

Central Bureau for Statistics. (2015a, December 23). *Fire brigade; fires, victims, rescues, staff, and costs 1985-2013* [Data set]. Retrieved from: http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=37511&D1=21,63,90,126,147&D2=0&D3=15-28&HDR=T&STB=G1,G2&VW=T

Central Bureau for Statistics. (2015b, September 30). *Fire brigade; fire reports 1985-2013* [Data set]. Retrieved from: http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=37441&D1=1-2,10-11&D2=0&D3=25-28&HDR=T&STB=G2,G1&VW=T

Central Bureau for Statistics. (2016a, October 6). *Crimes; Prosecution and trial* [Data set]. Retrieved from: http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=81532NED&D1=16%2c24-25&D2=29&D3=0&D4=0&D5=16-21&HDR=T&STB=G1%2cG2%2cG3%2cG4&VW=T

Central Bureau for Statistics. (2016b, April 7). *Registered crime; type of crime, region (classification 2016) 2005-2015* [Data set]. Retrieved from: http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=83363NED&D1=0-1%2c3-5&D2=34&D3=0&D4=a&VW=T

Cohen, L.E., & Felson, M. (1979). Social Change and Crime Rate Trends: A Routine Activity

Approach. American Sociological Review, 44(4), 588-608.

Dalhuizen, L. (2016). *Firesetting and firesetters in the Netherlands. Individualization, Identification and Treatment*. Eleven International Publishing: The Hague.

Davies, M., & Mouzos, J. (2007). Fatal fires: fire-associated homicide in Australia, 1990-2005, *Trends & issues in crime and criminal justice, 340*, 1-6.

Dickens, D., Sugarman, P., Edgar, S., Hofberg, K., Tewari, S., & Ahmad, F. (2009) Recidivism and dangerousness in arsonists, *The Journal of Forensic Psychiatry & Psychology, 20*(5), 621-639. doi: 10.1080/14789940903174006

Doley, R., Fineman, K., Fritzon, K., Dolan, M., & McEwan, T.E. (2011). Risk Factors for Recidivistic Arson in Adult Offenders. *Psychiatry, Psychology and Law, 18*(3), 409-423.

Drake, D., & Block, C. (2003). An evaluation of arson-associated homicide in Chicago 1965 to 1995. In C.R. Block & R. Block (Ed.), *Public health and criminal justice approaches to homicide research: proceedings of the 2003 Homicide Research Working Group Annual Symposium* (pp. 227-241). Retrieved from: http://www.homicideresearchworkinggroup.org/proceedings_2003.pdf

Fanton, L., Jdeed, K., Tilhet-Coartet, S., Malicier, D. (2006). Criminal burning. *Forensic Science International, 158*(2-3), 87-93. doi: 10.1016/j.forsciint.2005.04.040

Ferguson, C., Doley, R., Watt, B., Lyneham, M., & Payne, J. (2015). Arson-associated homicide in Australia: A five year follow-up. *Trends & issues in crime and criminal justice, 484*, 1-11.

Gannon, T.A., Ó Ciardha, C., Doley, R.M., & Alleyne, E. (2012). The Multi-Trajectory Theory of Adult Firesetting. *Aggression and Violent Behavior*, 17, 107-121.

Gannon, T.A., & Pina, A. (2010). Firesetting: Psychopathology, theory and treatment. *Aggression and Violent Behavior*. 15, 224-238.

Glancy, G.D., Spiers, E.M., Pitt, S.E., & Dvoskin, J.A. (2003). Commentary: Models and Correlates of Firesetting Behavior. *Journal of the American Academy of Psychiatry and the Law, 31*(1), 53-57.

Granath, S., Hagstedt, J., Kivivuori, J., Lehti, M., Ganpat, S., Liem, M., & Nieuwbeerta, P. (2011). *Homicide in Finland, the Netherlands and Sweden: A First Study on the European Homicide Monitor Data*. Retrieved from: https://www.bra.se/download/18.656e38431321e85c24d80007748/1371914718498/2011_15_homicide_finland_netherlands_sweden.pdf

Inciardi, J.A. (1970). The Adult Firesetter. A Typology. *Criminology*, 8, 145-155

Kolko, D.J., Kazdin, A.E. (1986). A Conceptualization of Firesetting in Children and Adolescents. *Journal of Abnormal Child Psychology, 14*(1), 49-61.

Kumar, R. (2011). *Research Methodology: a step-by-step guide for beginners* (3rd edition). California, Thousand Oaks: SAGE Publications Inc.

Kumar, V., & Tripathi, C.B. (2004). Burnt Wives: A study of homicides. *Medicine, Science and the Law, 44*(1), 55-60.

Lerer, L.B. (1994). Homicide-Associated Burning in Cape Town, South Africa. *The American Journal of Forensic Medicine and Pathology, 15*(4), 344-347

LexisNexis (n.d.). Bronnen in LexisNexis producten. Retrieved from: https://www.lexisnexis.nl/LexisNexis/bronnen/bronnen

Liem, M., & Reichelmann, A. (2014). Patterns of multiple family homicide. *Homicide Studies*, 18(1), 44-58.

Lowenstein, L.F. (2000). Recent Research into Arson (1992-2000): Incidence, Causes and Associated Features, Predictions, Comparative Studies and Prevention and Treatment. *Psychiatry, Psychology and Law*, 10(1), 192-198.

Owen, R., Bedford P., Leditschke, J., Schlenker, A., & Hartman, D. (2013). Post mortem sampling of the bladder for the identification of victims of fire related deaths *Forensic Science International, 233*, 14-20.

ResearchOptimus (n.d.). Wat is Crosstab? Retrieved from: https://www.researchoptimus.com/article/cross-tab.php

Rice, M.E., & Harris, G.T. (1991). Firesetters Admitted to a Maximum Security Psychiatric Institution. *Journal of Interpersonal Violence, 6*(4), 461-475.

Rıza Tümer, A., Akçan, R., Karacaoglu, E., Balseven-Odabas, A., Keten, A., Kanburoglu, C., Ünal, M., & Dinç, A.H. (2012). Postmortem burning of the corpses following homicide. *Journal of Forensic and Legal Medicine, 19*, 223-228.

Sapp, A.D., & Huff, T.G. (1994). *Arson-homicides: findings from a national study*. Washington DC: National Center for Analysis of Violent Crime, Federal Bureau of Investigation

Tak, P.J.P. (2008). *The Dutch criminal justice system*. Wolf Legal Publishers: The Netherlands, Nijmegen.

Van den Berg, R.G. (2015, January 20). SPSS CROSSTABS Command. Retrieved from: https://www.spss-tutorials.com/spss-crosstabs-command/

Yuen, A, C.Y., Yeoh, G.H., Alexander, B., & Cook, M. (2014). Building Simulation, 7(5), 477-487. doi: 0.1007/s12273-014-0164-9

5.2. JURISPRUDENCE

Hof ’s-Gravenhage 8 July 2011, ECLI:NL:GHSGR:2011:BR075

Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5850

Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5854

Hof Amsterdam 27 August 2012, ECLI:NL:GHAMS:2012:BX5853

Hof ’s-Hertogenbosch 20 December 2012, ECLI:NL:GHSHE:2012:BY6981

Hof Arnhem-Leeuwarden 14 August 2013, ECLI:NL:GHARL:2013:6057

Hof Amsterdam 17 July 2016, ECLI:NL:GHAMS:2014:2319

Hof Amsterdam 17 July 2016, ECLI:NL:RBAMS:2012:BV3609

Hof Amsterdam 17 July 2016, ECLI:NL:RBAMS:2012:BV3607

Hof Arnhem-Leeuwarden 20 July 2016, ECLI:NL:GHARL:2016:5909

Hof Arnhem-Leeuwarden 20 July 2016, ECLI:NL:GHARL:2016:5907

Hof ’s-Hertogenbosch 21 March 2017, ECLI:NL:GHSHE:2017:1081

Rb. ’s-Hertogenbosch 11 May 2011, ECLI:NL:RBSHE:2011:BQ4001

Rb. Rotterdam 3 October 2013, ECLI:NL:RBROT:2013:7738

Rb. Noord Nederland 24 October 2013, ECLI:NL:RBNNE:2013:6443

Rb. Oost-Brabant 9 April 2014, ECLI:NL:RBOBR:2014:1681

Rb. Oost-Brabant 23 May 2015, ECLI:NL:RBOBR:2016:2631

Rb. Noord Nederland 10 December 2015, ECLI:NL:RBNNE:2015:5676

Rb. Noord-Nederland 10 December 2015, ECLI:NL:RBNNE:2015:5674

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2631

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2632

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2633

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2634

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2635

Rb. Oost-Brabant 23 May 2016, ECLI:NL:RBOBR:2016:2636

APPENDIX A. THE EUROPEAN HOMICIDE MONITOR GUIDEBOOK AND CODING MANUAL 2011

Background

Crimes that lead to lethal violence through murder, manslaughter or assault resulting in death involve the most severe types of violence. Cases of lethal violence are assigned substantial resources in connection to criminal investigations, court cases and the implementation of penal sanctions, which involve long custodial sentences. They also constitute offences that receive a lot of media attention and that have great effect on perceptions of insecurity in society at large. Systematic knowledge about lethal violence is necessary for the assessment of national trends, factors that foster lethal violence, preventive measures, sentencing policy and the treatment of perpetrators.

Lethal violence is a crime category with a very small dark figure, which makes it particularly suitable for international comparisons. Within the EU there have been no homogenous comparisons regarding lethal violence. It is unknown how many countries have national data on the occurrence of homicide, and the data that does exist is not always comparable with other national data due to definitional differences. Although homicide rates and trends have been compared, the similarities and differences in homicide event, victim, and offender characteristics within EU member states have not yet been compared.

In order to enable comparisons of lethal violence within EU countries, the National Council for Crime Prevention in Sweden, the National Research Institute of Legal Policy in Finland and the Institute of Criminal Law and Criminology of Leiden University in the Netherlands received funding from the EU for a three-year project to be conducted in the years 2009-2011. During this time, the three countries combined their national homicide data, there- by laying the foundation for a joint database on lethal violence among all EU member states. This provides new opportunities for detailed comparisons and analyses. A first comparative analysis was also been carried out, comparing the rates and characteristics of lethal violence in the three member states.

It is the hope and expectation of the three project members that the database can and will be used by other EU member states by adding national data to the international dataset as well as using the data for analyses on lethal violence in Europe. This will be possible under the assumption that necessary resources are provided to ensure that the work on the European homicide monitor will continue.

Finland, the Netherlands and Sweden have national datasets that are updated continuously. For the purpose of the analysis, the variables in the European Homicide Monitor were chosen with regard to the information already available in the three countries national data. Before the end of the project, a final set of variables should be decided on, consisting of ideal variables rather than al- ready existing ones. The variables from each national dataset have been compared and 85 variables have been chosen to form the international dataset. Some variables have been chosen even though only two of three countries had them in their national data. Some variables required recoding, others did not.

This manual is intended to be used by those wanting to collect data in the European Homicide Monitor format. The Guidebook and Coding Manual can be kept at hand during coding and will hopefully answer questions that may arise during the coding process.

The content in this Guidebook and Coding Manual reflects the current state of the European Homicide Monitor in the year 2011. The content may be subject to change after its printing.

Introduction

Homicide is defined in the European Homicide Monitor as *an intentional criminal act of violence by one or more human beings resulting in the death of one or more other human beings*. The terms homicide and lethal violence are used interchangeably in this guidebook and coding manual. Homicide attempts, suicides, accidents, abortions, euthanasia and legal police interventions are not included.

The European Homicide Monitor includes all cases of homicide committed during the years 2003-2006 in Finland, the Netherlands and Sweden that are known to the judicial system. Cases where foreigners staying in the country become victims of homicide are included, but not cases where citizens of Sweden, Finland or the Netherlands became victims of lethal violence abroad.

Each homicide case was monitored from the initial police report until a judgement was made in a court of first instance.

Data sources

A number of different data sources were used in order to collect the national data from the three countries currently included in the European Homicide Monitor. Different data are available depending on the source and the country of origin. The different sources are:

- Official crime statistics
- Police reports
- Police investigations
- Autopsy reports
- Judgements
- Psychiatric evaluations
- The media

There is no set list of priority between the different sources, al- though the information from two sources may be contradictory. It is up to each country to decide on a hierarchy which best fits the goal of having the highest quality data possible, based on which types of documents are considered the most reliable. Different types of documents may be accessible and valued differently de- pending on their source.

The dataset

The dataset is designed so that each unit (row) consists of data be- longing to one person. In other words, one homicide event involving one victim and two perpetrators will have three rows in the dataset. Apart from each person having a unique serial number, each case (with one or more victims and perpetrators) is connected through the use of a case number variable.

The dataset consists of 85 variables, each in its own column. Some variables are open answer variables; others have a number of alternatives of which one must be chosen. Clarifying instructions are presented in the coding manual, which give additional information about how the variable and the variable labels should be used and interpreted.

The variables

The first variables in the dataset are *technical* and describe the serial number, case number, the country where the homicide took place and the legal status of the case. The subsequent variables describe *when* and *where* the homicide has taken place and *how* it has been carried out. The *type of homicide and motives* are de- scribed next, and after that the questions regarding the *personal characteristics* of the victim and perpetrator. Towards the end of the variable set there are a few questions about the case in terms of *prosecution and sentencing*, followed by variables concerning the *prior criminal record* of the perpetrator. Lastly, there is a variable to indicate so-called *corresponding cases* (i.e., cases that are of serial character or have some other connection to each other).

There are variables with open answers and labelled answers in the code manual. The general pattern for answering the variables with labelled answers is 0 for no and 1 for yes. The value 999 or 9999 is used when the answer is unknown (if the variable can assume the positive value of 999 or 9999, then the numbers -999 or -9999 are used instead). The value 99 is usually used to indicate that the information is missing due to the perpetrator in the case being unknown.

There are both case-bound and individual-bound variables in the dataset. Information about the variable types and how they are entered into the dataset can be found in the table below.

Table AB1. Variable types, numbers and instructions for the EHM dataset.

Variable type	Variable numbers	Instruction
Case-bound	1-14, 19-23	Values should be the same for both victim/-s and perpetrator/-s.
Individual-bound	18, 24-28, 33-46, 48-71 and 84	Values should differ for each involved individual.
Victim-bound	15-16, 29 and 47	Values should differ if there are multiple victims. Fill in the value for the principal victim on the perpetrator row (for a definition of principal victim see below).
Perpetrator-bound	17, 30-32, 72-83	Values should differ if there are multiple perpetrators. Fill in the value for the principal perpetrator on the victim row (for a definition of principal perpetrator see below). Variables 72-83 should only be filled in on the row of the perpetrator.

Definitions

Below is a list of definitions of some terms used in the dataset.

Homicide

A homicide is de ned as an intentional criminal act of violence by one or more human beings resulting in the death of one or more other human beings.

Homicide case

A homicide case is de ned as when a homicide act has taken place between one or more unique victim/-s and perpetrator/-s. Should two or more homicides take place involving the same perpetrator/- s, then the difference between one homicide case with two victims and two separate homicide cases is the amount of time that has gone by between the two homicides. Homicides that have been committed by the same perpetrator and have taken place within 24 hours are considered to be one case with two victims. Homicides that have been committed by the same perpetrator and have taken place with more than 24 hours between them are considered to be two separate cases.

Principal victim

The principal victim is de ned as the victim with the closest relationship to the perpetrator. If the victim and perpetrator are equally as close, choose the victim that died first. If this information is not available, choose randomly.

Principal perpetrator

The principal perpetrator is de ned as the perpetrator that has been prosecuted (see variable 72). If more than one perpetrator is prosecuted, then the principal perpetrator is the one with the most severe sentence (see variable 73). If two or more of the perpetrators have equal sentences, then choose the one with the most severe sanction (see variable 74). If the sanctions are equal, then the person with the closest relationship to the victim is the principal perpetrator (see variable 47). If this is information is not available, or if the perpetrators are equally as close to the victims, then you should choose at random.

Mental illness

Mental illness is de ned as there being documented evidence from one or more sources that the individual has been the recipient of psychiatric care or has been diagnosed with a mental disorder at the time of the crime.

Separation

Separation is de ned as the temporary or permanent splitting up of persons who have been in a romantic relationship.

Child killing

Child killing is de ned as the killing of a person between the age of 1 and 18.

Infanticide

An infant is de ned as a child up to the age of one year. Infanticide refers to when a child is killed within a year after his/her birth.

Eye witness

An eye witness is any person other than a suspect or perpetrator who was present and observed the incident that resulted in the homicide or lethal violence. The actual act of homicide must have been seen by the witness, i.e. having been present at the scene or having heard the crime take place is not enough.

Definitions used from other sources

Some variables in the dataset have been de ned with the help of other sources. These are:

- variable 20, where the middle-sized geographical unit of where the crime took place has been classified according to the country's NUTS 2 regions (Nomenclature of Territorial Units for Statistics),
- variable 21, where the small geographical unit of where the crime took place has been classified according to the country's NUTS 3 regions (Nomenclature of Territorial Units for Statistics),
- variable 24, where the modus of the crime has been classified according to the ICD-10 (International Classification of Dis- eases version 10),
- variable 28 concerning rearm categories, originally from the Harvard (US) NVDRS (National Violent Death Reporting Sys- tem) Coding Manual from 2003,

- variable 32, where the method of suicide used by the perpetrator (if suicide was committed during or after the crime) has been classified according to the ICD-10 (International Classification of Diseases version 10) and
- variable 62, where the professional status of the victim or perpetrator has been classified according to the European Socio-Economic Classification.

  Furthermore, five variables have been left undefined in the dataset. The reason for leaving some variables undefined is because some terms are better decided on in accordance with national standards or practices. Therefore, it is left to each country that submits data to decide on a definition that best suits their national circumstances. These variables are:
- variable 7, concerning the definition of when the crime is considered solved,
- variable 19, concerning the definition of a rural and urban area in which the crime took place,
- variable 58, concerning whether the mother's or father's birth country should be entered for parents' country of birth,
- variable 60, concerning the definition of when a victim or perpetrator should be considered to have children (legal definitions of adopted children etc. may vary) and
- variable 71, concerning choosing a suitable geographical unit to de ne whether the crime took place in the individual's area of residence or outside said area.

The coding manual

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
1	SERNR	Serial number	Open variable (numeric)	The serial number starts off with the submitting countries' country code times 10,000. Add one for every new row. Each number must be unique (only appear on one single row in the dataset) and by the first digits indicate the country of origin by country code (see Appendix B for a complete list).
2	CASENR	Case number	Open variable (numeric)	The serial number starts off with the submitting countries' country code times 10,000. Add one for every new case. Each case number must be unique (only appear on the rows that belong to the same case in the dataset) and by the first digits indicate the country of origin by country code (see Appendix B for a complete list).
3	COUNTR	Country	30 = Greece 31 = Netherlands 32 = Belgium 33 = France 34 = Spain 36 = Hungary 39 = Italy 40 = Romania 43 = Austria 44 = United Kingdom 45 = Denmark 46 = Sweden 48 = Poland 49 = Germany 351 = Portugal 352 = Luxembourg 353 = Ireland 356 = Malta 357 = Cyprus 358 = Finland 359 = Bulgaria 370 = Lithuania 371 = Latvia 372 = Estonia 386 = Slovenia 420 = Czech republic 421 = Slovakia	Choose the country that has submitted the data (should be the same as the country in which the homicide occurred). The value is the same as the country code (see Appendix B for a complete list).
4	NRVIC	Number of victims	Open variable (numeric) 999 = Unknown	State the number of victims involved in the case. A victim is de ned as any person who is a victim of lethal violence. Murder attempts, other forms of violence and other crimes committed against others in the same incident are not to be included.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
5	NRPERP	Number of perpetrators	Open variable (numeric) 999 = Unknown	State the number of perpetrators involved in the case. A perpetrator is de ned as any person who is suspected of and/or charged with homicide. Perpetrators that have been found not guilty are therefore included in the data.
6	CRIME	Legal type of Homicide	1 = Murder 2 = Manslaughter (cases with mitigating circumstances) 3 = Assault resulting in death 4 = Infanticide 999 = Unknown	Indicate the type of homicide that has been reported to/is being investigated by the police. “Manslaughter” also refers to “aggravated manslaughter”, and “Assault resulting in death” also refers to “Aggravated assault resulting in death”. Infanticide is de ned as the deliberate killing of an infant under the age of one. If there are multiple perpetrators charged with different legal types of homicide, choose the most severe. See the definition of principal perpetrator.
7	SOLVED	Has the crime been solved?	0 = No 1 = Yes 999 = Unknown	This means that cases that are cleared or “exceptionally cleared” by the police are considered solved. However, there might exist slight national variations in the definition of when a case are considered solved.
8	YEARREP	Year the crime was reported	Open variable (numeric) 999 = Unknown	State the year the crime became known to the police (four digit number, e.g. 2008).
9	YEARCOM	Year the crime was committed	Open variable (numeric) 999 = Unknown	State the year the crime was committed (four digit number, e.g. 2008).
10	MONTH	Month the crime was committed	1 = January 2 = February 3 = March 4 = April 5 = May 6 = June 7 = July 8 = August 9 = September 10 = October 11 = November 12 = December 999 = Unknown	State the month the crime was committed.
11	WDAY	Day the crime was committed	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday 8 = Day unknown, Mon-Thu 9 = Day unknown, Fri-Sun 999 = Unknown	State the day of the week that the crime was committed.
12	PUBHOL	Crime committed during a public holiday	0 = No 1 = Yes 999 = Unknown	Indicate whether the crime was commit- ted during a public or national holiday (e.g. Christmas Eve). This does not include School Holidays (e.g. summer holidays).
13	TIME	Time the crime was committed	1 = Morning (6.00 to 12.00) 2 = Afternoon (12.00 to 18.00) 3 = Evening (18.00 to 24.00) 4 = Night (00.00 to 6.00) 999 = Unknown	The time of day that the crime was com- mitted.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
14	TIMEDISC	Days between crime was commit- ted and the crime was revealed or the body discovered	Open variable (numeric) 9999 = Unknown	Indicate the number of days that have gone by from the time the crime was committed until it was discovered. Value 0 = the crime was discovered within the same calendar day or, if the calendar day has changed, within 12 hours after it was committed. Value 1 = the crime was discovered one day (with at least 12 hours marginal) after the crime was committed. (For example, a crime committed late at night, 11.30 PM, and discovered (or rst reported) at 2.30 AM, is considered dis- covered within the same day (as well as a crime committed 5.30 AM and discovered 19.00 PM). A crime committed 11.30 PM and discovered 12.30 PM the next day, on the other hand, is considered discovered 1 day after it was committed.)
15	TIMDEATH	Hours between committed crime and time of death	Open variable (numeric) 999 = Unknown	The number of hours that went by from the time the crime was committed until the victim died. (0 = the victim died within the first hour, 1 = the victim died after one hour etc.).
16	VICDECEASED	Victim deceased before, during or after professional medical care?	1 = Deceased before professional medical care 2 = Deceased during professional medical care 3 = Deceased after professional medical care 999 = Unknown	Indicate whether the victim died before, during or after professional medical care, e.g. in an ambulance or at the hospital.
17	TIMEARRESTED	Days between crime was commit- ted and the principal perpetrator was arrested	Open variable 9997 = Perpetrator committed suicide before arrest 9998 = Perpetrator unknown 9999 = Unknown	The number of days that have gone by from the time the crime was committed and the principal perpetrator was arrested by the police. Code according to the same principal as in variable 14. If the perpetrator was arrested within the first day or within 12 hours after the crime, then choose value 0. If the perpetrator was arrested after the first day (with at least 12 hours marginal) choose value 1. Enter the value for the principal perpetrator on the row of the victim.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
18	CRIMESCENE	Crime scene	-4 = Private home, resident un- known 1 = Private home of victim and perpetrator 2 = Private home of perpetrator 3 = Private home of victim 4 = Private home of other person (not victim or perpetrator) 5 = Institution, dormitory 6 = Hotel or motel 7 = Inside a car or other private vehicle 8 = Park, forest or recreational area 9 = Shop, restaurant or other place of entertainment and amusement (coffee shop, bar, amusement park, etc.) 10 = Street, road, public transportation or other public place 11 = Workplace 12 = Other 999 = Unknown	Indicate where the act of lethal violence took place. This refers to where the crime was committed, not to the place where the body was found. Private home (values -4, 1, 2, 3, 4) means in or around the home, including the at- tic, basement, staircase, garden etc. If the homicide has taken place in a private home, but it is unclear which of the values 1-3 you should choose, then you should choose –4. Institution, Dormitory (value 5) includes. hospitals, prisons, dormitories and homeless shelters Value 10 also applies to queues, parking lots, on a train or in a school.
19	URBANRURAL	Was the crime committed in an urban or rural area?	1 = Urban 2 = Rural 999 = Unknown	Indicate whether the crime was committed in an urban or rural area. Each country is free to use a definition that best describes the division between urban and rural nationally.
20	NUTS2	NUTS 2 code for area where crime was committed	Open variable (string)	Indicate in which NUTS 2 region (Nomenclature of Territorial Units for Statistics) the crime was committed. If unknown, leave blank. Se appendix A for a list of NUTS 2 regions in SE, FI and NL. See the following website for a full list and further details: http://epp.eurostat.ec.europa.eu/portal/ page/portal/nuts nomenclature/introduction
21	NUTS3	NUTS 3 code for area where crime was committed	Open variable (string)	Indicate in which NUTS 3 region the crime was committed. If unknown, leave blank. Se appendix A for a list of NUTS 3 regions in SE, Fi and NL. See the following website for a full list and further details: http://epp.eurostat.ec.europa.eu/portal/ page/portal/nuts nomenclature/introduction

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
22	POLICEREP	By whom was the crime made known to the police?	1 = The victim or someone asked by the victim 2 = The perpetrator or someone asked by the perpetrator 3 = A relative or friend of the victim or perpetrator 4 = Other private person (witness, bystander, neighbour, etc.) 5 = The police themselves discovered the crime 6 = Other person on duty (e.g. medical staff, re brigade, superintendent, janitor) 7 = Other 999 = Unknown	Indicate who first reported or made the crime known to the police or the authorities.
23	WITNESS	Were there any eyewitnesses?	0 = No 1 = Yes 999 = Unknown	Indicate if there were any eyewitnesses to the homicide. Witness(es) are any person(s) other than a suspect or perpetrator who was present and observed the incident that led to the homicide or lethal violence. Being at the crime scene or hearing the crime does not qualify.
24	MODUS	Indicate the modus operandi of the homicide	1 = Poisoning 2 = Exposure to corrosive or hot substances 3 = Hanging/Strangulation/Suffocation 4 = Drowning 5 = Firearm 6 = Bomb/explosive 7 = Smoke or fire 8 = Knife or other sharp object/ weapon 9 = Blunt object/weapon 10 = Axe 11 = Push or shove (from/in front of something) 12 = Motor Vehicle 13 = Hitting, kicking or other similar physical violence without weapon 14 = Other 999 = Unknown	The labels are loosely based on the ICD 10 list of *Assault* under the chapter *External causes of morbidity and mortality* (World Health Organisation, International Classification of Diseases, 1990). Changes have been made to better suit the data. 1 = ICD 10: X85, X88 2 = ICD 10: X86, X87, X89, X90, X98 3 = ICD 10: X91 4 = ICD 10: X92 5 = ICD 10: X93, X94, X95 6 = ICD 10: X96 7 = ICD 10: X97 8 = ICD 10: X99 9 = ICD 10: Y00 11 = ICD 10: Y01, Y02 12 = ICD 10: Y03 13 = ICD 10: Y04, Y07 14 = ICD 10: Y08, Y09 The methods are listed in the same order as they are mentioned in the ICD 10. If multiple methods have been used, choose the method highest up on the list. For example, if the victim has been stabbed (value 8) and kicked (value 13), choose value 8. When multiple sources indicate that different types of violence have caused death, submit the type given in the autopsy first. If there is no autopsy, then you should use in the following order: medical statement, police statement, media statement, your own assessment.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
25	KNIFE	Placement of knife-related violence on body	0 = Knife not used 1 = Left chest 2 = Throat 3 = Abdomen/stomach 4 = Back 5 = Right chest 6 = Other body parts 7 = Knife was used but did not enter the victim's body 999 = Unknown 9999 = Unknown if knife was used or not	If the violence leading to the victim's death was knife-related, indicate were the stabs were positioned on the body of the victim. The labels are listed from most (1 = Left chest) to least severe (6 = Other body parts). Indicate the most severe violence. If a knife has been used and it is unclear where the stabs were positioned, use value 999.
26	NRSTABS	Number of stabs	Open variable (numeric) -999 = Unknown -9999 = Unknown if there were any stabs	Indicate the number of stabs in the victim's body.
27	FIREARM	License circumstances when rearm used	0 = Firearm not used 1 = Legal rearm 2 = Illegal rearm 999 = Unknown 9999 = Unknown if rearm was used or not	If a rearm has been used, then you should indicate its legality. Legal = The perpetrator had a license for it Illegal = The rearm was illegal and/or the perpetrator had no license to use it
28	TYPEFIREARM	Type of rearm used to cause victims death	0 = Firearm not used 1 = Pistol, revolver or other hand- gun 2 = Rifle, shotgun or other long gun 3 = Machine gun 999 = Unknown 9999 = Unknown if rearm was used or not	Indicate the type of rearm that was used in the homicide. If multiple type of rearms where used, indicate the type from which the killing bullets were red. Pistols, revolvers and other handguns (1) are rearms designed to be held and operated by one hand, with the other hand optionally supporting the shooting hand. Rifles, shotguns or other long guns (2)are rearms designed to be red from the shoulder or held in both hands. Machine guns (3) are rearms designed to re numerous bullets in quick succession from an ammunition belt or large-capacity magazine. The three categories of rearms are, in order of appearance, based on the categories 2-7, 8-24 and 1 in the Harvard (US) NVDRS Coding manual (2003).
29	VICVIOL	Victim's violence against perpetrator	0 = Victim did not use any violence 1 = Victim used violence in self-defence 2 = Victim used violence first or in a non-self-defence manner 999 = Unknown	Indicate if the victim used any violence against the perpetrator when the crime was committed.
30	SUICIDE	Perpetrator's suicide	0 = No 1 = Yes 2 = Suicide attempt only 99 = Perpetrator unknown 999 = Unknown	Indicate if the perpetrator tried to/did commit suicide after having committed the crime. Earlier attempts are not to be included. In cases with multiple perpetrators, enter the value for each perpetrator on each row. On the row of the victim you should indicate the answer for the principal perpetrator.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
31	SUICIDETIME	Time of committed suicide	0 = Perpetrator did not commit suicide 1 = 0-1 hours after the homicide 2 = 1-24 hours after the homicide 3 = 24 hours to one week after the homicide 4 = More than one week after the homicide 99 = Perpetrator unknown 999 = Unknown	Indicate when the perpetrator committed suicide. Suicide attempts are not to be included (value 0). In cases with multiple perpetrators, enter the value for each perpetrator on each row. On the row of the victim you should indicate the answer for the principal perpetrator.
32	SUICIDEMETHOD	Method of suicide	0 = The perpetrator did not commit suicide 1 = Overdose, legal substance 2 = Overdose, illegal substance 3 = Hanging, suffocation, strangulation 4 = Drowning 5 = Firearm 6 = Explosives 7 = Smoke or fire 8 = Knife/cutting 9 = Blunt object 10 = Jumping in front of or from something 11 = Motor vehicle 12 = Other 99 = Perpetrator unknown 999 = Unknown	Indicate the method of the suicide. The labels are loosely based on the ICD 10 list of *Assault* under the chapter *External causes of morbidity and mortality* (World Health Organisation, International Classification of Diseases, 1990). Changes have been made to better suit the data. 1 = ICD 10: X60, X61, X63, X64, X65, X66, X67, X68, X69 2 = ICD 10: X62, X64, X67, X68, X69 3 = ICD 10: X70 4 = ICD 10: X71 5 = ICD 10: X72, X73, X74 6 = ICD 10: X75 7 = ICD 10: X76 8 = ICD 10: X78 9 = ICD 10: X79 10 = ICD 10: X80, X8 11 = ICD 10: X82 12 = ICD 10: X77, X83, X84 The methods are listed in the same order as they are mentioned in the ICD 10. If multiple methods have been used, choose the method highest up on the list. Suicide attempts not included (value 0).

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
33	TYPEHOM	Type of homicide (in broad terms)	1 = Partner killing 2 = Child killing within family 3 = Infanticide 4 = Other familial killing 5 = Criminal milieu (rip deals, narcotics affairs etc.) 6 = Robbery killing: commercial business (shop, bank, taxi etc.) 7 = Robbery killing: private home 8 = Robbery killing: street robbery (civilian victim) 9 = Nightlife violence 10 = Killing by mentally disturbed person (Non-family) 11 = Other in non-criminal milieu 12 = Killing by children, not family-related 13 = Child killed by adult, not family-related 14 = Sexual 15 = Other 999 = Unknown	Choose the type of homicide that best describes the case in reference to relation- ship, motive and situation between the perpetrator and the victim. The relationship between the victim and the perpetrator should usually be considered the most important variable when defining the type of homicide. Partner killing refers to all homicides that take place between two persons who have, or have had, an intimate relationship. Child killing within family (value 2) refers to children between the age of 1 and 18 years old being killed by a family member. Family members constitute any person with whom the victim has kinship as well as persons adopted by or married to a person with whom the victim has kinship. Infanticide refers to the killing of children up to one year of age. Cases where a grown up son or daughter is the victim or the perpetrator of a homicide involving e.g. their parents are de ned as familial killings (value 4). Parent is de ned as biological mother or father as well as anyone with whom the victim has or has had an equivalent social or legal relationship. Killing by children, not family-related (value 12) refers only to killings by individuals under the age of 14. Child killed by adult, not family-related (value 13) refers only to killings with victims under the age of 14. Adult is de ned as any person over the age of 18.
34	MREVENGE	Motive revenge	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether revenge was a motive. In variables, 34-46 multiple answers may be given if there is more than one motive. In the case of multiple perpetrators, indicate the motives for each of them on their row. Indicate the motive of the principal perpetrator on the row of the victim.
35	MJEALOUSY	Motive jealousy	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether jealousy was a motive.
36	MSEPARATION	Separation motive	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether separation was a motive.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
37	MTRIVIALITY	Triviality motive	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether a triviality caused the homicide.
38	MOTHAT	Hate crime motive	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether the homicide was a hate crime.
39	MOTTHR	Perpetrator threatened motive	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether a motive was the perpetrator being threatened.
40	MOTMEN	Mental illness/psychological disorder	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether mental illness or psycho- logical disorder was a motive.
41	MOTALT	Motive altruism	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether altruism was a motive (e. g. a man killing his mother who is suffering from a severe and very painful chronic disease).
42	MOTNCEC	Was the motive financial, but not in itself criminal?	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether the motive was financial but in itself non-criminal, e.g. the homicide is a result of an action to get some borrowed object back.
43	MOTCEC	Was the motive criminal for a financial purpose?	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether the motive was financial and criminal e.g. the homicide was the result of a robbery or burglary.
44	MOTSEX	Was the motive rape or other sexual offence?	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether the motive was of sexual nature.
45	MOTCRIM	Was the motive of other criminal nature?	0 = No, other motive 1 = Yes 999 = Unknown	Indicate whether the motive was of other criminal nature.
46	MOTOTH	Was the motive any other than the above?	0 = No 1 = Yes 999 = Unknown	Indicate whether the motive was another than those stated above in variables 34-45.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
47	RELAT	Relationship be- tween victim and perpetrator.	0 = Perpetrator and victim do not know each other 1 = Husband 2 = Ex-husband 3 = Boyfriend 4 = Ex-boyfriend 5 = Wife 6 = Ex-wife 7 = Girlfriend 8 = Ex-girlfriend 9 = Father 10 = Stepfather 11 = Mother 12 = Stepmother 13 = Child 14 = Stepchild 15 = Sibling 16 = Grandparent or great grand- parent 17 = Other relative 18 = Housemate or flatmate (previous or present) 19 = Co-worker (previous or pre- sent) 20 = Classmate (previous or pre- sent) 21 = Teacher (previous or present) 22 = Schoolmate (previous or present) 23 = Patient (previous or present) 24 = Therapist (previous or pre-sent) 25 = Prostitute (previous or pre-sent) 26 = Purchaser of sexual services (previous or present) 27 = Neighbour 28 = Friend or long-time acquaintance 29 = The perpetrator and victim are slightly known to each other (not friends) 30 = New acquaintance (met in the last 24 hours) 31 = Partner or ex-partner (marital or engagement status unknown) 32 = Partner or ex-partner of the same sex; males (marital or engagement status unknown) 33 = Partner or ex-partner of the same sex; females (marital or engagement status unknown) 999 = Unknown	Enter the value for the relationship that the victim has to the perpetrator (i.e. the victim is the (variable value) of the perpetrator). In cases of "overlapping" relations e. g. when the victim is a neighbour as well as a friend of the perpetrator, use the value that describes the principal (first and/or most important) status of the relationship. If this is not possible, use the value that indicates the most objective circumstance in the relationship. In the case of neighbour and friend, this means that the code for neighbour (value 27) should be used if the victim and perpetrators were neighbours before they were friends and/or because being neighbours is factual while the extent of their friendship is harder to determine. If the victim is a mistress or lover of the perpetrator, code girlfriend (value 7) or boyfriend (value 3). If the victim is the child of the perpetrator's unmarried partner, code stepchild (value 14). If victim is the parent of the perpetrator's partner, code other relative (value 17). In cases of partner-relations of the same sex, use the values 1-4 if it is a female- female relationship, and the values 5-8 if it is a male-male relationship. E.g. if a woman is killed by a woman she is married to, the relationship is coded as a 1, and if a man is killed by his ex-boyfriend, the relationship is coded as an 8. In same-sex-relations where the martial or engagement status is unknown, use value 32 or 33.
48	PRETHREATSBY-PERP	Previous unlawful threats by perpetrator towards victim?	0 = No 1 = Yes, but without it being re-ported to the police 2 = Yes, and it has been reported to the police 999 = Unknown	Indicate if the perpetrator has threatened the victim in an unlawful way prior to the crime. If threats have occurred but it is uncertain if they have been reported to the police, choose value 1.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
49	PRETHREATSBY-VIC	Previous unlawful threats by victim towards perpetrator?	0 = No 1 = Yes, but without it being reported to the police 2 = Yes, and it has been reported to the police 999 = Unknown	Indicate if the victim has threatened the perpetrator in an unlawful way prior to the crime. If threats have occurred but it is uncertain if they have been reported to the police, choose value 1.
50	PREVIOLENCEBY-PERP	Previous violence by perpetrator towards the victim?	0 = No 1 = Yes, but without it being reported to the police 2 = Yes, and it has been reported to the police 999 = Unknown	Indicate if the perpetrator has used violence against the victim prior to the crime. If violence has occurred but it is uncertain if it has been reported to the police, choose value 1.
51	PREVIOLENCE-BYVIC	Previous violence by victim towards the perpetrator	0 = No 1 = Yes, but without it being reported to the police 2 = Yes, and it has been reported to the police 999 = Unknown	Indicate if the victim has used violence against the perpetrator prior to the crime. If violence has occurred but it is uncertain if it has been reported to the police, choose value 1.
52	TYPE	Is the individual a victim or perpetrator?	0 = Victim 1 = Perpetrator	Indicate whether the case row concerns a victim or a perpetrator.
53	PRINCIPAL	Is the individual a principal victim or a principal perpetrator in the homicide case?	0 = No 1 = Yes, principal perpetrator 2 = Yes, principal victim 999 = Unknown	Indicate whether the row concerns a victim or a perpetrator that can be considered to be a principal individual in the case. The Principal Victim = The victim with the closest relationship to the perpetrator. If the victim and perpetrator are equally as close, or the relationship is unknown, choose the victim that died first. If the relationship is equal or unknown, choose the oldest victim as the principal victim. If all victims are of the same age or if their age is unknown, choose randomly. The principal perpetrator = The perpetrator that has been prosecuted (see variable 72). If more than one perpetrator is prosecuted, then the principal is the one with the most severe sentence (see variable 73). If two or more of the perpetrators have equal sentences, then choose the one with the most severe sanction (see variable 74). If that also is equal, then it is the one with the closest relationship to the victim (see variable 47). If that also is equal, choose randomly.
54	GENDER	Gender of the individual	1 = Male 2 = Female 999 = Unknown	State the gender of the individual.
55	AGE	Age of the individual	Open variable (numeric) 150 = Unknown, 15 years or over 151 = Unknown, under 15 years 999 = Unknown	State the age of the individual (at the time of the crime).

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
56	BIRTHCOUNTRY	Birth country of the individual	0 = Same country the crime took place in 1 = Canada 2 = Unites states 3 = Puerto Rico -999 = Unknown -998 = Unknown -997 = Unknown -996 = Unknown -995 = Unknown -994 = Unknown -993 = Unknown -992 = Unknown -991 = Unknown -990 = Other foreign country Europe North America South America Africa Asia (west parts) Asia (east parts) Oceania	Choose the birth country of the individual. Use the official country code for the nation (see appendix B for a full list of country codes). The United States and Puerto Rico have the same country code as Canada (value 1). Therefore, use value 2 for the United States and value 3 for Puerto Rico. Note the different "unknown" values at the bottom of the list. If individuals are born in countries that no longer exist, e.g. former Yugoslavia or USSR, and it is unknown in which part they were born according to new values (e.g. Serbia, Bosnia, Belarus, etc.), code them as being born in the biggest new country by population. At present (2011): Yugoslavia = Serbia and USSR = Russia.
57	CITIZ	Citizenship of the individual	0 = Same country the crime took place in 1 = Canada 2 = Unites states 3 = Puerto Rico -999 = Unknown -998 = Unknown -997 = Unknown -996 = Unknown -995 = Unknown -994 = Unknown -993 = Unknown -992 = Unknown -991 = Unknown -990 = Other foreign country Europe North America South America Africa Asia (west parts) Asia (east parts) Oceania	Indicate the citizenship of the individual. In cases of double citizenship, choose the country of residence first and the country of birth second. Use the official country code for the nation (see appendix B for a full list of country codes). The United States and Puerto Rico have the same country code as Canada (value 1). Therefore, use value 2 for the United States and value 3 for Puerto Rico. Note the different "unknown" values at the bottom of the list. If individuals are born in countries that no longer exist, e.g. former Yugoslavia or USSR, and it is unknown in which part they were born according to new values (e.g. Serbia, Bosnia, Belarus, etc.), code them as being born in the biggest new country by population. At present (2011): Yugoslavia = Serbia and USSR = Russia.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
58	PARENTS	Birth country of the individual's parents	0 = Same country the crime took place in 1 = Canada 2 = Unites states 3 = Puerto Rico -999 = Unknown -998 = Unknown -997 = Unknown -996 = Unknown -995 = Unknown -994 = Unknown -993 = Unknown -992 = Unknown -991 = Unknown -990 = Other foreign country Europe North America South America Africa Asia (west parts) Asia (east parts) Oceania	Indicate the country of birth for one parent if only one parent was born abroad, and the country of birth for both parents if they are from the same country. If the parents were both born abroad, but born in different countries, it is up to the submitting country to choose the birth country of the father or the mother of the individual. Use the official country code for the nation (see appendix B for a full list of country codes). The United States and Puerto Rico have the same country code as Canada (value 1). Therefore, use value 2 for the United States and value 3 for Puerto Rico. Note the different "unknown" values at the bottom of the list. If individuals are born in countries that no longer exist, e.g. former Yugoslavia or USSR, and it is unknown in which part they were born according to new values (e.g. Serbia, Bosnia, Belarus, etc.), code them as being born in the biggest new country by population. At present (2011): Yugoslavia = Serbia and USSR = Russia.
59	CIVIL	Civil status	1 = Married 2 = Cohabitants 3 = In a boyfriend/girlfriend relationship 4 = Single 5 = Divorced 6 = Widowed 999 = Unknown	State the civil status of the individual.
60	CHILD	Does the individual have children?	0 = No 1 = Yes 999 = Unknown	Indicate whether the individual has children or not. Having children means that the individual is a parent according to the national legal definition in the country where the homicide was committed.
61	HOUSESIT	Housing situation of the individual	0 = Cohabiting with partner 1 = Cohabiting with both parents or stepparents 2 = Cohabiting with one parent or stepparent 3 = Living alone (with or without children) 4 = Cohabiting with friend 5 = Temporarily living with someone 6 = Homeless 7 = Closed institution 8 = Other 999 = Unknown	Indicate the housing situation of the individual. 'Cohabiting with friend' also means cohabiting with relatives other than parents, step- parents or children (e.g. siblings, cousins etc.) Partners who live together on and off are regarded as cohabiting with partner (value 0). Closed institution (value 7) applies to prisons, psychiatric wards etc.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
62	PROF	Professional status of the individual	0 = Working class 1 = Intermediate 2 = Managers and professionals 3 = Retired 4 = Unemployed 5 = Sick-listed or disabled 6 = Not yet of school age 7 = Student 8 = Military service 9 = Housewife/-husband/stay-at- home parent 10 = Asylum seeker 11 = Imprisoned or in a similar institution 12 = Other 999 = Unknown	Labels 1-3 are based on the European Socio-economic Classification. Se the following webpage for more details of which professions are included in the three categories: http://www.iser.essex.ac.uk/re- search/esec/user-guide/detailed-category- descriptions-and-operational-issues.
63	EDUC	Level of completed education of the individual	0 = Not completed compulsory school 1 = Compulsory school 2 = Higher education 3 = Occupational education 4 = Not started school 5 = Enrolled in compulsory school 6 = Enrolled in higher education 7 = Enrolled in occupational education 999 = Unknown	Indicate the highest completed level of education of the individual. Compulsory school (value 2) is de ned ac- cording to the national legal definition in the country where the homicide was committed.
64	DRINK	Had the individual been drinking alcohol at the time of the crime?	0 = No, nothing in the case indicates this 1 = Yes, some indications exist 2 = Yes, there are sure indications 999 = Unknown	Indicate if the individual had been drinking alcohol at the time of the crime. Some indications mean that there are circumstances in the case that indicate that the individual had been drinking alcohol at the time of the crime, e.g. empty bottles or cans or other paraphernalia, the presence of other persons who have been drinking alcohol or a recent history of alcoholism. Sure indications mean that there is explicit information about the individual having been drinking alcohol at the time of the crime.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
65	DRUG	Had the individual taken drugs at the time of the crime?	0 = No, nothing in the case indicates this 1 = Yes, some indications exist 2 = Yes, there are sure indications 999 = Unknown	Indicate if the individual had taken any drugs at the time of the crime. Some indications mean that there are circumstances in the case that indicate that the individual had taken drugs at the time of the crime, e.g. drug paraphernalia, the presence of other persons who have been taking drugs or a recent history of drug abuse. Sure indications mean that there is explicit information about the individual having been taking drugs at the time of the crime. Drugs refer to the use of "narcotics" (heroin, morphine etc.) as well as stimulants (cocaine, amphetamine etc.) and hallucinogens (ecstasy, hashish etc.). Excessive use (i.e. more than prescribed) of legally prescribed drugs is also included in the definition.
66	ALCOHOLIC	Is the individual an alcoholic?	0 = No, nothing in the case indicates this 1 = Yes, some indications exist 2 = Yes, there are sure indications 999 = Unknown	Indicate whether the individual is known to be an alcoholic. Some indications mean that there are circumstances in the case that indicate that the individual has excessive drinking patterns, such as consuming large amounts of alcohol over a period of several days. Sure indications mean that the individual has been diagnosed and/or treated clinically.
67	DRUGADD	Is the individual a drug addict?	0 = No, nothing in the case indicates this 1 = Yes, some indications exist 2 = Yes, there are sure indications 999 = Unknown	Indicate whether the individual is known to be a drug addict. Some indications mean that there are circumstances in the case that indicate that the individual has excessive drug use patterns at the time of the crime, such as consuming "hard" or large amounts of drugs over a period of several days. Sure indications mean that the individual has been diagnosed and/or treated clinically. Drug dependence refers to the use of "narcotics" (heroin, morphine etc.) as well as stimulants (cocaine, amphetamine etc.) and hallucinogens (ecstasy, hashish etc.) Excessive use (i.e. more than prescribed) of legally prescribed drugs is also included in the definition.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
68	PSYCH	Does the individual have a history of mental illness or suffer from a psychological disorder?	0 = No, nothing in the case indicates this 1 = Yes, some indications exist 2 = Yes, there are sure indications 999 = Unknown	Indicate whether the individual has a history of mental illness or is suffering from a psychological disorder. Some indications mean that there is in- formation about or circumstances in the case that indicate that the individual has a history of mental illness, e.g. distressed psychological or behavioural patterns or self-expressed concern over mental health. Sure indications mean that the person has been diagnosed and/or treated clinically.
69	VIOLENTHISTORY	Does the individual have a history of violence?	0 = No 1 = Yes 999 = Unknown	Indicate if the individual has a history of violence. History of violence is de ned as having been reported to the police for violent crimes previous to the homicide occasion.
70	OTHCRIM	Were any other crimes committed against the individual in the homicide event?	0 = No, no other crimes were com-mitted against the individual in the homicide event 1 = Sexual assault against the individual 2 = Other crime against the individual 3 = The individual was the witness of a crime 999 = Unknown	Indicate whether there were any other crimes committed against the individual in the situation of the homicide. The data in this variable refers to the specific individual on each row, not the case overall. So, if the perpetrator was robbed by the victim, for example, then code no (value 0) on the row of the victim and other crime against the individual (value 2) on the row for the perpetrator. If more than one value is applicable for one individual, choose the value highest up on the list, e.g. sexual assault (value 1) before other crimes (value2).
71	AREA	The individual's relation to the region or area where the crime was com-mitted	0 = Living in another region/area/ city 1 = Living in the same region/ area/city 999 = Unknown	Indicate whether the individual lives in the same or in a different region/area/city than the one where the homicide took place. It is up to each submitting country to choose a suitable geographical unit to best describe the individuals relation to the place where the homicide was committed.
72	PROSECUTED	Has the suspect been prosecuted of homicide?	0 = No, there is no suspect 1 = No, the suspect has not yet been arrested 2 = No, the suspect is too young to be prosecuted 3 = No, the suspect is deceased 4 = No, other reason 5 = Yes 6 = Yes, but only of other crime/-s 999 = Unknown	Indicate whether the suspect has been prosecuted or charged with the homicide. In case of appeal, enter the details from the court of first instance.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
73	SENTENCED	Has the perpetrator been sentenced?	0 = No, perpetrator found not guilty 1 = No, the perpetrator was not held accountable for his/her actions due to mental illness 2 = No, perpetrator deceased 3 = No, not sentenced for other reasons 4 = Yes, of homicide 5 = Yes, of other crime/-s 99 = Perpetrator unknown 999 = Unknown	Indicate whether the perpetrator has been sanctioned. For variables 72-74, in case of appeal, enter the details from the court of first instance. The label 'perpetrator convicted of other crime' refers to other crimes committed at the same time as the homicide, not crimes committed at another time but for which the perpetrator is sentenced at the same trial. If the perpetrator has not yet been sentenced but is going to be, choose value 3. In case of a combination of homicide (value 4) and other crime/-s (value 5) choose value 4.
74	SANCTIONED	What was the perpetrator sanctioned to?	0 = Perpetrator not sanctioned 1 = Prison 2 = Acute Psychiatric care 3 = Long term psychiatric care 4 = Prison and psychiatric care (acute or long term) 5 = Youth prison 6 = Youth prison and psychiatric care 7 = Youth institutional treatment 8 = Youth prison and youth institutional treatment 9 = Other 999 = Unknown	Indicate what sanction the perpetrator has been given. The term sanctioned is used to avoid exclusion of sanctions that do not follow a sentence. Long term psychiatric care (value 3) refers to a sanction of acute psychiatric care + long term psychiatric care. Enter not sanctioned (value 0) for all known perpetrators who have not been sanctioned, whatever the reason (perpetrator dead, found not guilty etc.)
75	LENGTHSEN-TENCE	Length of sentence	Open variable (numeric) -9998 = Lifetime -9999 = Unknown	Indicate the length of the sentence in number of days (30 days in one month, 365 days in one year). Sentence reduction is not included. Code 9999 if perpetrator is sentenced to a time-restricted sanction but it is unknown for how long. If the perpetrator has not been sentenced, leave blank. Leave blank if the perpetrator has only been sanctioned for other crimes.
76	PREHOM	Has the perpetrator previously been sentenced for homicide?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of homicide prior to this homicide event.
77	PREVIO	Has the perpetrator previously been sentenced for other violent crimes?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of other violent crime prior to the crime. Violent crime refers to all assault crimes excluding those already covered by variables 75, 77 and 78.
78	PRESEX	Has the perpetrator previously been sentenced for sexual crimes?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator been found guilty of sex crimes prior to the homicide.

Variable number	Variable name in SPSS	Complete variable name	Label	Clarifying instructions
79	PREROB	Has the perpetrator previously been sentenced for robbery?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of robbery prior to the homicide.
80	PREPROP	Has the perpetrator previously been sentenced for crimes against property?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of property crime prior to the homicide.
81	PREDRUG	Has the perpetrator previously been sentenced for drug crimes?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of drug crime prior to the homicide.
82	PRETRAF	Has the perpetrator previously been sentenced for traffic violations?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator has been found guilty of traffic violations prior to the homicide.
83	PREOTH	Has the perpetrator previously been sentenced for other crimes than those stated above?	0 = No 1 = Yes 999 = Unknown	Indicate whether the perpetrator been found guilty of other crime prior to the homicide than those stated above in variables 74-81.
84	PRECON	Number of previous convictions	Open variable (numeric) 999 = Unknown	Indicate the perpetrator's number of previous convictions (not the number of crimes). All convictions count (independent of which sanction is given). In case of appeal, enter the details from the court of first instance.
85	CORR	Corresponding cases	Open variable (numeric) 99 = No corresponding cases 999 = Unknown	If a perpetrator or victim in the case is connected to any other case (for example when the perpetrator of one homicide is the victim of another or when one person commits multiple homicides at different times) this is indicated by entering the corresponding serial number. When there are no indications of corresponding cases, choose value 99. Victims and perpetrators in the same case, as well as cases with multiple victims or perpetrators are not indicated here. Instead, they are connected through the case number variable (variable number 2).